CLASSIFICATION OF THE PLANT COMMUNITIES OF BEAVERHEAD, SILVER BOW, AND MADISON COUNTIES, MONTANA

VOLUME II (appendices)

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for

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APPENDIX A

SITE BASIC RECORDS FOR EACH SITE VISITED

Site Basic Record
BLOCK MOUNTAIN

From Glen, proceed south on pavement ca. 0.75 mile to the Burma Road. Take this road 7.5 miles to Sandy Hollow. Block Mountain is 1.5 miles northeast.

Block Mountain is a flat-topped basalt butte rising ca. 700 feet above the draw to the west. Slopes are very steep and rocky, discouraging access by cattle. Vegetation is primarily Artemisia tridentata shrublands and Agropyron spicatum grasslands. Small amounts of Juniperus scopulorum woodlands and Cercocarpus ledifolius shrublands occur on the summit and on the rimrocks.

COUNTY: Madison

USGS QUADRANGLE: BLOCK MOUNTAIN

TOWNSHIP-RANGE: 004S008W SECTION: 23
QUARTER/ADDITIONAL SECTIONS: Portions of 23, 24, 25, and 26

BOUNDING RECTANGLE: S: 452734N N: 452824N E: 1123228W W: 1123332W

BOUNDARY JUSTIFICATION: The primary boundary contains the least disturbed (by cattle) vegetation occurrences on Block Mountain. The boundary encircles the mountain down to the major draws to the west, north, east and southeast. The southwest boundary is defined by the abrupt change in slope gradient along the 5200-feet contour.

APPROXIMATE ACREAGE: 340.00

GENERAL RATING: 2
G2? and G3? community elements are present: Agropyron spicatum/Oryzopsis hymenoides and Juniperus scopulorum/Artemisia tridentata, respectively.

BIODIVERSITY SIGNIFICANCE: B3
The site contains occurrences of G2? and G3? community elements and common community types in pristine condition.

OTHER VALUES: V2
Block Mountain is a prominent and highly aesthetic feature of the landscape.

PROTECTION URGENCY: P4
The upper slope and mesa-top vegetation is relatively pristine due to rocky and steep topography isolated from water. It is unlikely that increased cattle disturbance is a threat. The pristine vegetation occurrences make Block Mountain worthy of consideration for ACEC designation.

MANAGEMENT URGENCY: M4
The less steep, less rocky side slopes of the mountain have been heavily grazed by cattle and horses in some places. Careful management of livestock to minimize such disturbances would be desirable.

CONSERVATION INTENT: Recommend establishment of a BLM ACEC.

PROTECTION COMMENTS: The summit of Block Mountain is by coincidence protected from most use by domestic stock since it is surrounded by very steep and rocky slopes.

LAND USE: The primary land use has been for livestock grazing and wildlife production. However, no water developments are present on the steep slopes or summit of Block Mountain, so cattle use has been light to nonexistent on these sites.

NATURAL HAZARDS: The rimrock cliffs and rattlesnakes may pose hazards.

EXOTICS: No exotic plant species currently appear to pose a threat to the quality of this site.

OFF-SITE LAND USES: Surrounding lands, particularly those with water developments and gentle slopes to the south, are being used for livestock production, which threatens the ecological condition of the lower portions of the site.

INFORMATION NEEDS:

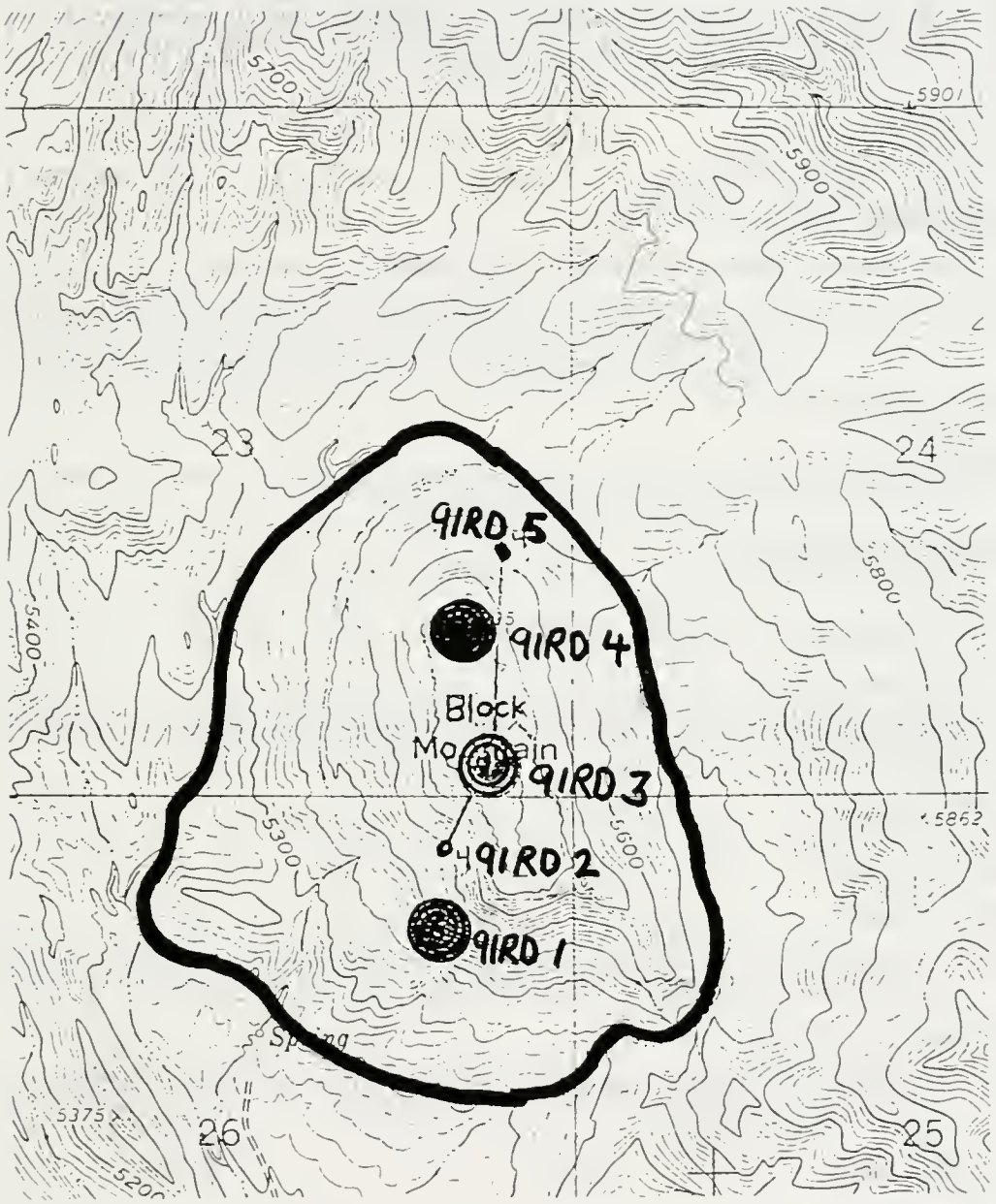
MANAGEMENT NEEDS: Do not install water developments, salt blocks, or other cattle attractants on Block Mountain. Under current conditions the mountain appears relatively secure from cattle impacts.

MANAGEMENT COMMENTS:

ELEMENT OCCURRENCE INFORMATION:

NAME:	GRANK:	SRANK:	REF:
JUNIPERUS SCOPULORUM-ARTEMISIA TRIDENTATA	G2?	S2?	001
ARTEMISIA TRIDENTATA/AGROPYRON SPICATUM PA	G5	S5	019
AGROPYRON SPICATUM-ORYZOPSIS HYMENOIDES PA	G3?	S2?	001

OWNERSHIP/MANAGEMENT: BLM: BUTTE DISTRICT, DILLON RESOURCE AREA
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)



Location of sample plots within the Block Mountain site. The map shown is a portion of the USGS 7.5' Block Mountain quadrangle.

Site Basic Record
BUHRER GULCH

From Glen, proceed south on pavement ca. 0.75 mile to the Burma Road. Take this road 4.5 miles and park. The prominant badlands 0.4 mile due north constitute this site.

The site is characterized by steeply sloping and highly eroded badlands. The sparse vegetation present is dominated by Chrysothamnus nauseosus and Atriplex nuttallii. Locations outside the badlands feature heavily grazed Artemisia tridentata communities on non-saline soils, and Sarcobatus vermiculatus communities on flat, saline soils.

COUNTY: Madison

USGS QUADRANGLE: BLOCK MOUNTAIN

TOWNSHIP-RANGE: 004S008W SECTION: 28
QUARTER/ADDITIONAL SECTIONS: W2

BOUNDING RECTANGLE: S: 452708N N: 452750N E: 1123549W W: 1123627W

BOUNDARY JUSTIFICATION: The site is centered on the badlands, featuring the Atriplex nuttallii/Oryzopsis hymenoides community type. The boundaries generally follow ridge crests to the north, east and west, and the flats near the Burma Road to the south.

APPROXIMATE ACREAGE: 160.00

GENERAL RATING: 5
An S2? community element is present (the Atriplex nuttallii/Oryzopsis hymenoides type), but it is likely not the best expression of the community type.

BIODIVERSITY SIGNIFICANCE: B4
The flatter portions of the site have been heavily degraded by cattle use.

OTHER VALUES: V3
The badlands present are aesthetically significant.

PROTECTION URGENCY: P2
The steep badland portion of the site receives infrequent cattle visits; however, significant soil disturbance may occur with each visit. Flatter portions of the site are being heavily degraded by cattle.

MANAGEMENT URGENCY: M3
Unless cattle use is reduced, the site will likely continue to degrade.

CONSERVATION INTENT:

PROTECTION COMMENTS:

LAND USE: The site is used primarily for cattle production. Cattle only infrequently enter the steep badlands portion of the site. The flat areas have been heavily impacted by cattle use.

NATURAL HAZARDS: None known.

EXOTICS: Exotic plant species do not appear to pose a threat; however, Opuntia polyacantha cover appears to be increasing substantially on the flatter portions of the site in response to heavy grazing.

OFF-SITE LAND USES:

INFORMATION NEEDS:

MANAGEMENT NEEDS: Reduce cattle numbers and grazing intensity.

MANAGEMENT COMMENTS:

ELEMENT OCCURRENCE INFORMATION:

NAME:
ATRIPLEX NUTTALLII-ORYZOPSIS HYMENOIDES PA

GRANK:	SRANK:	REF:
G3G4	S2?	001

OWNERSHIP/MANAGEMENT: BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Location of sample plot within the Buhrer Gulch site. The map shown is a portion of the USGS 7.5' Block Mountain quadrangle.

Site Basic Record
CENTENNIAL SANDHILLS

From Monida, proceed east on main Centennial Valley gravel road ca. 10 miles to a dirt road leading north. Take this road 3 miles to a T intersection. Stay on the most prominent road leading east and continue for 16.5 miles to a Y intersection. The site extends east from this point ca. 4 miles.

The site is characterized by sandhills of glacially-derived alluvial sands up to 50 feet tall in various stages of stabilization by vegetation. The most stable surfaces feature Artemisia tripartita and A. tridentata/Festuca idahoensis communities, while Agropyron dasystachum/Phacelia hastata communities occur in blowout areas and more active dune surfaces. Five state rare plant speces are known to occur on the site.

COUNTY: Beaverhead

USGS QUADRANGLE: LOWER RED ROCK LAKE

TOWNSHIP-RANGE: 013S002W SECTION: 23
QUARTER/ADDITIONAL SECTIONS: Portions of 10,11,13,14,22,24,26,27

BOUNDING RECTANGLE: S: 444035N N: 444245N E: 1114510W W: 1115045W

BOUNDARY JUSTIFICATION: The site encompasses the sand dune complex, including rare plant populations and a spring north of the dune area, which may be one source of groundwater for sandhills and plant populations.

APPROXIMATE ACREAGE: 4000.00

GENERAL RATING: 2
A and B-ranked element occurrences.

BIODIVERSITY SIGNIFICANCE: B2
Five rare plants are associated with the sandhills and blowouts, including Astragalus ceramicus var. apus (G4T3S1), Cryptantha fendleri (G4S1), Elymus flavescens (G4S1), Eriogonum ovalifolium var. nevadense (G5T4S1), and Oenothera pallida var. idahoensis (G5T3QS1). A rare plant community, Agropyron dasystachyum/Phacelia hastata (G2?S2?) is present. Ferruginous hawks nest on the top of sand dunes, and badger, red fox, and coyotes maintain dens in the dune complex. Other species that use the area include: sandhill crane, snowshoe hare, antelope, mule deer, elk, and moose.

OTHER VALUES: V1
One of only two sandhill complexes in Montana.

PROTECTION URGENCY: P3
Potential threats from oil and gas development. Cattle grazing on portions of the site may degrade vegetation quality significantly. ACEC designation and withdrawal from grazing for at least the east half of section 22 may be desirable.

MANAGEMENT URGENCY: M3
Maintain dynamic nature of dunes. Carefully manage cattle use to minimize impacts.

CONSERVATION INTENT: Recommend establishment of a BLM ACEC.

PROTECTION COMMENTS:

LAND USE: Section 22, the W2 of 23, and N4 of 27 have received light grazing from 1977 to 1981, and little or no grazing each year from 1982 to 1987. the E2 of section 23, all of section 24, and the W3 of section 19 are privately-owned and have been continuously grazed from 1977-1987. There is also a cattle trough on the private land that concentrates cattle in a small area for long periods. Grazing is effective in maintaining blowouts in the early successional stages most conducive to the maintenance of rare plant populations.

NATURAL HAZARDS: None known.

EXOTICS: This is a very pristine site, with very few introduced species. Bromus tectorum is present but not in abundance.

OFF-SITE LAND USES: Surrounding lands are grazed by both cattle and sheep.

INFORMATION NEEDS: Research the effects of burning on maintaining the blowouts in early successional stages.

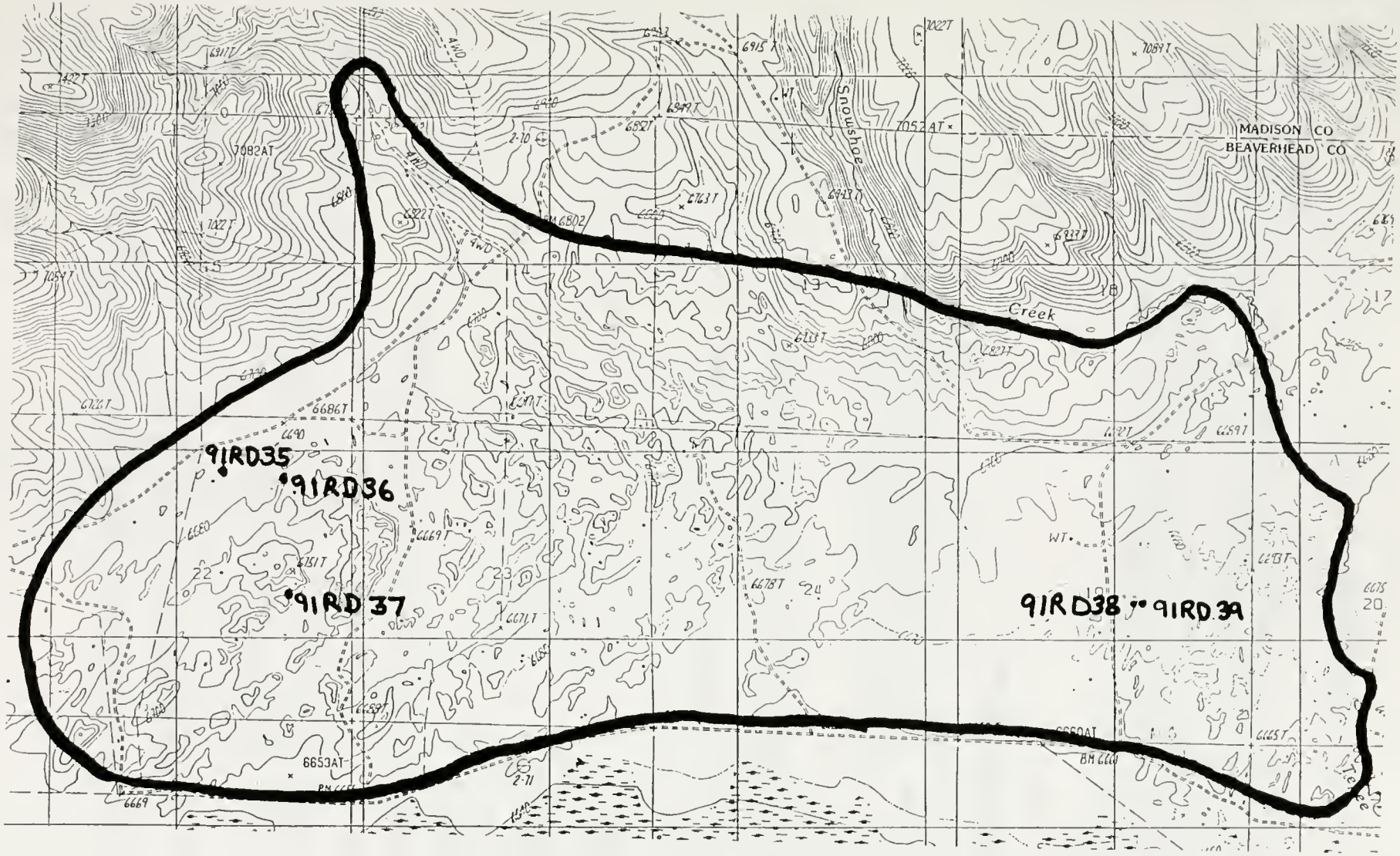
MANAGEMENT NEEDS: Restrict grazing on private lands. Depending on land purchase, fencing may be required.

MANAGEMENT COMMENTS: Borders Red Rocks Lakes National Wildlife Refuge.

ELEMENT OCCURRENCE INFORMATION:

NAME:	GRANK:	SRANK:	REF:
ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS PA	G5	S4	015
ARTEMISIA TRIPARTITA/FESTUCA IDAHOENSIS PA	G5	S3	001
ARTEMISIA TRIPARTITA/FESTUCA IDAHOENSIS PA	G5	S3	004
AGROPYRON DASYSTACHYUM/PHACELIA HASTATA PA	G2?	S2?	001
AGROPYRON DASYSTACHYUM/PHACELIA HASTATA PA	G2?	S2?	002
AGROPYRON DASYSTACHYUM/PHACELIA HASTATA PA	G2?	S2?	003
ELYMUS LANCEOLATUS/PHACELIA HASTATA	G?	S?	001
FESTUCA IDAHOENSIS/STIPA COMATA			001
CRYPTANTHA FENOLERI	G4	S1	001
ASTRAGALUS CERAMICUS VAR APUS	G4T3	S1	001
OENOTHERA PALLIDA VAR IDAHOENSIS	G5T4Q	S1	001
ERIOGONUM OVALIFOLIUM VAR NEVADENSE	G5T4	S2	003
ELYMUS FLAVESCENS	G4	S1	001

OWNERSHIP/MANAGEMENT: BLM: BUTTE DISTRICT, DILLON RESOURCE AREA
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)
STATE LAND - UNDESIGNATED



Location of sample plots within the Centennial Sandhills site. The map shown is a portion of the USGS 7.5' Lower Red Rock Lake quadrangle.

Site Basic Record
CHARCOAL CREEK

From Divide (town), proceed west on State Highway 43 to a Y in the road just before a bridge crossing the Big Hole River. Take the right-hand road (don't cross bridge) and proceed 0.6 mile to a small townsite and dirt road leading north up Charcoal Creek. Take this road 1.1 miles and park. The site is just south of the water tank, 0.3 mile to the west.

The site is a steep slope with granitic parent materials. Granite outcrops and boulders occupy ca. 40% of the ground surface. The vegetation is dominated by Cercocarpus ledifolius and graminoids. Scattered Pseudotsuga menziesii are present but, for the most part, likely represent "invaders" arriving as a result of fire exclusion. The more mesic areas feature the P. menziesii/Festuca idahoensis community type.

COUNTY: Silver Bow

USGS QUADRANGLE: DEWEY

TOWNSHIP-RANGE: 001S010W SECTION: 12
QUARTER/ADDITIONAL SECTIONS: NW4

BOUNDING RECTANGLE: S: 454602N N: 454622N E: 1124715W W: 1124737W

BOUNDARY JUSTIFICATION: The boundaries encompass the Cercocarpus ledifolius/Festuca idahoensis occurrence west of the water tank road and extend around the summit of the hilltop above and to the draw west of the occurrence.

APPROXIMATE ACREAGE: 60.00

GENERAL RATING: 5
An S2? community element is present (Cercocarpus ledifolius/Festuca idahoensis type) but is in degraded condition and is not likely the best expression of the type.

BIODIVERSITY SIGNIFICANCE: B4
The abundance of Bromus tectorum diminishes the biodiversity significance of this site.

OTHER VALUES: V4

PROTECTION URGENCY: P2
Bromus tectorum is likely on the increase and will continue to degrade the site with or without protection.

MANAGEMENT URGENCY: M3
Consider reducing deer and elk numbers and keeping livestock off the site.

CONSERVATION INTENT:

PROTECTION COMMENTS:

LAND USE: Deer and elk likely use this site frequently. Sheep and perhaps cattle may have heavily grazed this site in the past given the high cover of Bromus tectorum.

NATURAL HAZARDS: Slipping on granite boulders could present a hazard.

EXOTICS: The abundant Bromus tectorum cover is cause for concern. It likely indicates a combination of soil disturbance on a naturally mobile substrate and past heavy grazing use.

OFF-SITE LAND USES: Surrounding lands are primarily used for livestock grazing. Influx of cattle onto this site from surrounding areas will probably increase the cover of Bromus tectorum.

INFORMATION NEEDS: The Cercocarpus ledifolius/Festuca idahoensis type has not previously been described. Similar but less disturbed habitats in southwestern Montana should be searched for additional examples of the community.

MANAGEMENT NEEDS: The Cercocarpus ledifolius/Festuca idahoensis community type is rare and this occurrence is worthy of considering for protection. However, Bromus tectorum

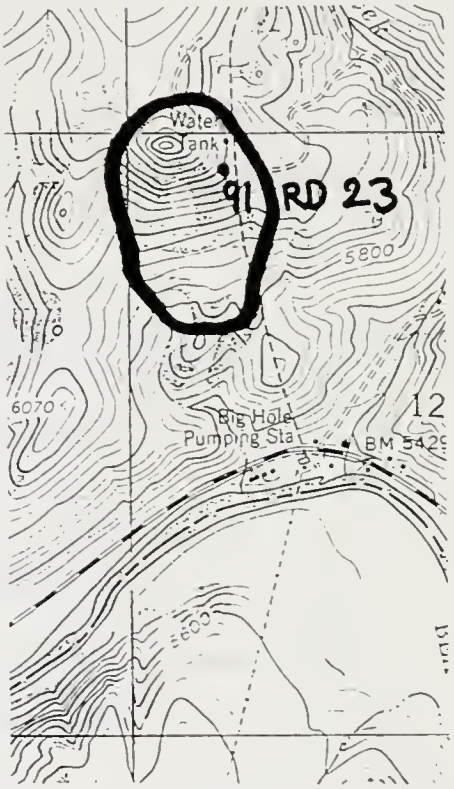
control would need to be implemented, along with control of deer, elk and livestock use.

MANAGEMENT COMMENTS:

ELEMENT OCCURRENCE INFORMATION:

NAME:	GRANK:	SRANK:	REF:
CERCOCARPUS LEDIFOLIUS/FESTUCA IDAHOENSIS PA	G2?	S2?	001

OWNERSHIP/MANAGEMENT: BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA



Location of sample plot within the Charcoal Creek site. The map shown is a portion of the USGS 7.5' Dewey quadrangle.

Site Basic Record
CHARCOAL MOUNTAIN

From Divide (town), proceed west 1 mile on State Highway 43. Take a right on the Fleecer Mountain dirt road. The site is generally defined by the area within 0.3 mile of this road, along the first 2 miles from Highway 43.

The site is characterized by moderate-relief rolling uplands. Elevations range from 5500 to 6650 feet, with the summit of Charcoal Mountain forming the highest point on the site. Prominent features include an outcrop ridge of granite in the south half of the southwest quarter of section 6, and Charcoal Mountain in the northeast quarter of section 1. Pseudotsuga menziesii and Juniperus scopulorum/Cercocarpus ledifolius communities (both G3S3) are present; however, Bromus tectorum is well-represented to abundant and these occurrences are C-ranked at the best. No rare plants were observed on the site.

COUNTY: Silver Bow

USGS QUADRANGLE: DEWEY

TOWNSHIP-RANGE: 001S009W SECTION: 07
QUARTER/ADDITIONAL SECTIONS: Portions of 6 and 7 in T1SR9W, and 1 and 12 in T1SR10W.

BOUNDING RECTANGLE: S: 454520N N: 454700N E: 1124530W W: 1124705W

BOUNDARY JUSTIFICATION: The western boundary generally follows Charcoal Creek and the Big Hole River, Charcoal Mountain and spur ridges form the northern boundary, roads and drainage bottoms form the eastern and southern boundaries.

APPROXIMATE ACREAGE: 1100.00

GENERAL RATING: 5
Most of the area has been degraded by heavy grazing in the past, and no areas with EO ranks exceeding C were observed.

BIODIVERSITY SIGNIFICANCE: B4
The predominant communities present are G4 or G5 and include Artemisia tridentata/Festuca idahoensis and A. tridentata/Agropyron spicatum, Agropyron spicatum/Poa sandbergii, Festuca idahoensis/Agropyron spicatum, and Pseudotsuga menziesii/Festuca idahoensis. Degraded examples of the following G3 communities are also present: Pseudotsuga menziesii/Cercocarpus ledifolius, and Juniperus scopulorum/Cercocarpus ledifolius.

OTHER VALUES: V2
The site has high value as wildlife habitat for deer, elk and antelope.

PROTECTION URGENCY: P3
Most of the site is contained within the Fleecer Mountain Wildlife Management Area, and receives the protection associated with the designation.

MANAGEMENT URGENCY: M3
Bromus tectorum appears to be increasing, particularly on sites characterized by high natural soil disturbance (i.e., the granite ridge in section 6). B. tectorum control may be necessary.

CONSERVATION INTENT:

PROTECTION COMMENTS:

LAND USE: Heavy grazing by livestock appears to have occurred in the past. Present use appears to focus on deer, elk and antelope production. Many old mines occur on Charcoal Mountain, and wood fences subdivide the site into multiple units. An old aqueduct cuts across the northwest portion of the site.

NATURAL HAZARDS: Mine shafts on Charcoal Mountain are a safety hazard.

EXOTICS: Bromus tectorum is the most common exotic plant present, and is abundant in some areas of high disturbance (e.g., roadsides, erosive slopes).

OFF-SITE LAND USES: Surrounding lands are primarily used for domestic stock production.

INFORMATION NEEDS:

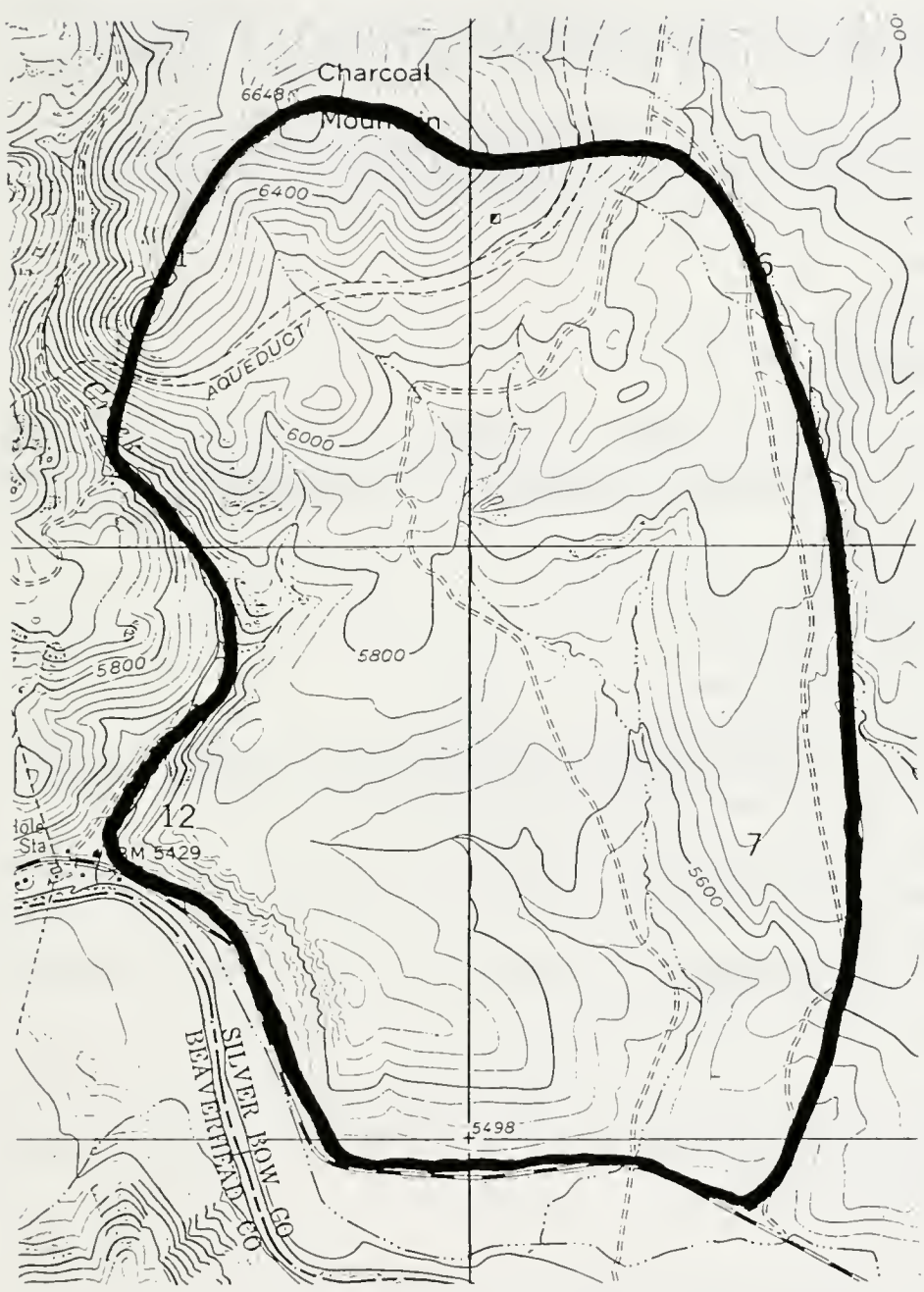
MANAGEMENT NEEDS: None of the communities observed have EO ranks better than C due to effects from past and current heavy grazing (by both domestic and native herbivores). The well-represented to abundant cover of Artemisia frigida throughout the site is suggestive of heavy grazing effects. However, the available pool of Agropyron spicatum, Festuca idahoensis and Cercocarpus ledifolius is still large and the vegetation present would likely improve in EO rank if protection from heavy grazing/browsing were initiated.

MANAGEMENT COMMENTS: Much of this site is contained within the Fleecer Mountain Wildlife Management Area.

ELEMENT OCCURRENCE INFORMATION:

NAME: GRANK: SRANK: REF:

OWNERSHIP/MANAGEMENT:



The Charcoal Mountain site. The map shown is a portion of the USGS 7.5' Dewey quadrangle.

Site Basic Record
ELK GULCH

From the cemetery in Dillon (1 mile east of town), proceed on the gravel Sweetwater Road 14 miles east to a dirt road and gate on the south side of the Sweetwater Road. Go through the gate and follow the dirt road 6.5 miles to a jeep trail on a forested ridge. Take this jeep trail 0.4 mile south and park. The site is 0.2 mile to the south.

The site occurs on soils derived from peridotite and granite gneiss parent materials. The peridotite portion of the site was mapped in 1970 as having greater than 1000 ppm nickel (map of Elk Creek Nickel Claims, K. Stout, Butte, MT). Artemisia tridentata/Festuca idahoensis communities occur on both parent materials, but the occurrences on peridotite appear to be relatively sparse.

COUNTY: Beaverhead

USGS QUADRANGLE: ELK GULCH

TOWNSHIP-RANGE: 009S007W SECTION: 02
QUARTER/ADDITIONAL SECTIONS:

BOUNDING RECTANGLE: S: 450433N N: 450502N E: 1122520W W: 1122555W

BOUNDARY JUSTIFICATION: The primary boundary contains the full range in soil nickel concentrations from below 100 ppm to above 1000 ppm, and follows drainage bottoms and divides.

APPROXIMATE ACREAGE: 100.00

GENERAL RATING: 5
No G2, G2 or G3 elements present.

BIODIVERSITY SIGNIFICANCE: B4
BC-ranked occurrences of G5 elements.

OTHER VALUES: V2
A wide range of soil nickel contents occurs across the site. High nickel concentrations have been shown to affect vegetation composition and structure. This site is important in showing the interaction of shrub-steppe vegetation and soil nickel.

PROTECTION URGENCY: P1
Mine expansion in the areas with high nickel content is currently underway. It is likely this site will soon be severely disrupted.

MANAGEMENT URGENCY: M1
Within the site, it may be desirable that at least one area with good-condition vegetation be preserved from mining disturbance.

CONSERVATION INTENT:

PROTECTION COMMENTS:

LAND USE: Cattle have heavily grazed the area in the past, especially the flatter surfaces. However, it does not appear that cattle have been present on the site in 1990 and 1991. Mining activity is intensifying in the area.

NATURAL HAZARDS: None.

EXOTICS: No exotic species currently appear to pose a threat to this site.

OFF-SITE LAND USES: Mining of adjacent areas may result in weed influx to the site and could alter the site's hydrologic and nutrient regimes.

INFORMATION NEEDS: More intensive investigation is necessary to verify whether or not there is a peridotite parent material effect on vegetation composition and structure. Also, the site should be more thoroughly surveyed for the presence of rare plants.

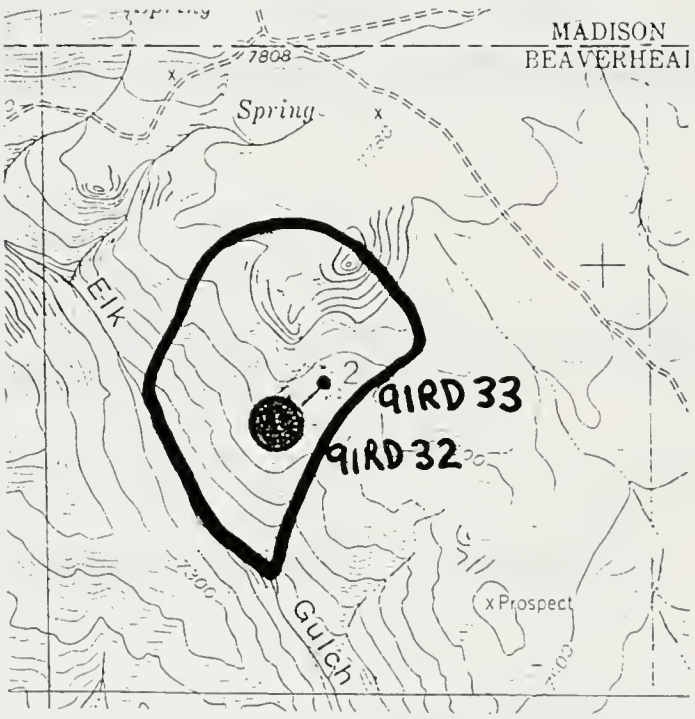
MANAGEMENT NEEDS: Closely regulate mining and livestock grazing so that such anthropogenic factors do not mask natural vegetation /soil responses.

MANAGEMENT COMMENTS:

ELEMENT OCCURRENCE INFORMATION:

NAME:	GRANK:	SRANK:	REF:
ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS PA	G5	S4	014

OWNERSHIP/MANAGEMENT: BLM: BUTTE DISTRICT, DILLON RESOURCE AREA



Location of sample plots within the Elk Gulch site. The map shown is a portion of the USGS 7.5' Elk Gulch quadrangle.

Site Basic Record
GOAT MOUNTAIN

From the Moose Creek Road exit on Interstate 15 (exit #99) south of Divide (town), proceed north and west on the frontage road 0.5 mile to a junction with a gravel road. Take this gravel road south 1.2 miles to a Y intersection. Go right to the Big Hole River and park (0.4 mile). Site is the mountain immediately to the north.

Goat Mountain is more-or-less conical butte ca. 1 mile in diameter and over 1000 feet in relief. The mountain's summit area is of quartzite parent material while the southeast ridge is predominantly limestone. Relatively dry southern and western exposures feature Cercocarpus ledifolius and Artemisia tridentata shrublands and Juniperus scopulorum woodlands (with abundant Cercocarpus). The summit area is predominantly of the Juniperus scopulorum/Cercocarpus ledifolius community type. More mesic sites feature the Pseudotsuga menziesii/Festuca idahoensis type.

COUNTY: Silver Bow

USGS QUADRANGLE: MELROSE
CATTLE GULCH

TOWNSHIP-RANGE: 001S009W SECTION: 32
QUARTER/ADDITIONAL SECTIONS: Portions of 29, 32 and 33.

BOUNDING RECTANGLE: S: 454210N N: 454312N E: 1124345W W: 1124508W

BOUNDARY JUSTIFICATION: The western and southern boundaries follow the railroad tracks just above the Big Hole River. The eastern and northern boundaries follow the first major drainages encountered along radii extending from the summit of Goat Mountain.

APPROXIMATE ACREAGE: 600.00

GENERAL RATING: 2
G3 communities present.

BIODIVERSITY SIGNIFICANCE: B3
Good quality occurrences of G3 communities and a historic peregrine falcon eyrie (G3S1) with a high potential for re-occupancy are present.

OTHER VALUES: V2
Goat Mountain is a prominent and highly aesthetic landscape feature.

PROTECTION URGENCY: P3
A major mine is present just south of Goat Mountain. Expansion of this (or other mines) may threaten the site. Livestock grazing is impacting the lower portions of the site.

MANAGEMENT URGENCY: M4
Most of the rare community occurrence area lies above the zone of heavy livestock use.

CONSERVATION INTENT: Recommend establishment of a BLM ACEC.

PROTECTION COMMENTS: The upper portions of the Goat Mountain are by coincidence protected from most use by domestic stock by very steep and rocky slopes.

LAND USE: The site is primarily used for wildlife habitat. Domestic grazing occurs on the lower portions of the site, but most of the site is too steep, rocky and removed from water, and as a result receives little or no livestock use.

NATURAL HAZARDS: Steep cliffs and large boulders present dangers. Rattlesnakes likely inhabit much of the site.

EXOTICS: Exotic plants do not appear to pose an immediate threat to this site.

OFF-SITE LAND USES: Cattle from adjacent heavily grazed lands will occasionally enter the site and cause some degradation. The soils are highly erosive in many parts of the site and additional trampling would increase soil movement. Noise pollution from the nearby mine may interfere with wildlife values.

INFORMATION NEEDS:

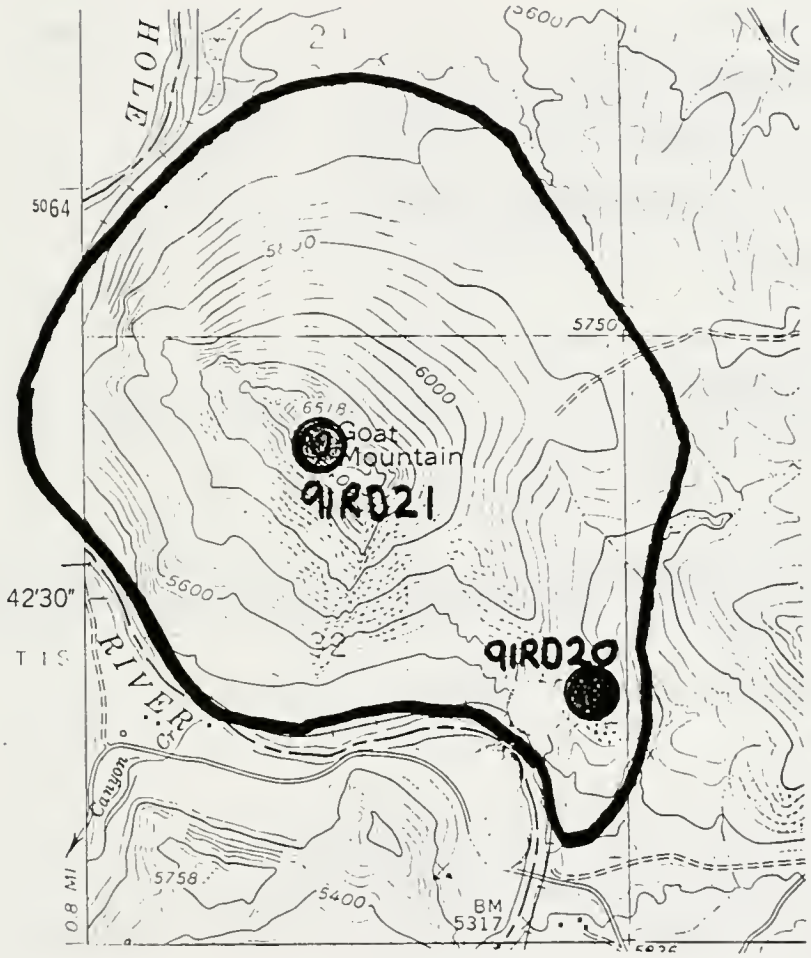
MANAGEMENT NEEDS: Timber harvest would likely degrade the A-ranked Pseudotsuga menziesii/Festuca idahoensis occurrence on the northerly slopes of Goat Mountain. Timber productivity is likely low, and removing the site from the timber base might be considered. Regulate cattle use to prevent degradation of the vegetation on the accessible lower portions of the site.

MANAGEMENT COMMENTS:

ELEMENT OCCURRENCE INFORMATION:

NAME:	GRANK:	SRANK:	REF:
JUNIPERUS SCOPULORUM/CERCOCARPUS LEDIFOLIUS PA	G3	S3	004
PSEUDOTSUGA MENZIESII/CERCOCARPUS LEDIFOLIUS PA	G3?	S3?	004

OWNERSHIP/MANAGEMENT: BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)



Location of sample plots within the Goat Mountain site. The map shown is a portion of the USGS 7.5' Melrose quadrangle.

Site Basic Record
HAHNKAMP ISLAND

From Melrose, proceed south 0.7 mile on the frontage road and park. Ford the Big Hole River to the island/site.

The site is a flat island of gravelly and sandy alluvium in the Big Hole River. Vegetation ranges from Artemisia tridentata/Agropyron smithii and Agropyron smithii communities on relatively xeric sites in the central portion of the island, to mesic Populus trichocarpa/Cornus stolonifera and Phalaris arundinacea communities along the edges of the island. A range of six salix communities is also present.

COUNTY: Beaverhead

USGS QUADRANGLE: EARLS GULCH

TOWNSHIP-RANGE: 002S009W SECTION: 35
QUARTER/ADDITIONAL SECTIONS: Portions of 35 in T2SR9W, and 2 in T3SR9W.

BOUNDING RECTANGLE: S: 453616N N: 453730N E: 1124042W W: 1124120W

BOUNDARY JUSTIFICATION: The boundary follows the shoreline of the island to the south, east and west, and the Melrose/Glendale road to the north.

APPROXIMATE ACREAGE: 170.00

GENERAL RATING: 5
No G3 communities or species present.

BIODIVERSITY SIGNIFICANCE: B4
C-ranked Agropyron smithii community (G4S3) present. Muhlenbergia minutissima (G4S1) has been reported in the area.

OTHER VALUES: V2
The site provides high-quality riparian wildlife habitat.

PROTECTION URGENCY: P2
Many of the communities present are weedy (probably because of heavy grazing). Populus trichocarpa regeneration is threatened by cattle browsing. Consideration of making the island a riparian exclosure may be desirable.

MANAGEMENT URGENCY: M3
Carefully manage livestock use to minimize vegetation degradation.

CONSERVATION INTENT:

PROTECTION COMMENTS:

LAND USE: The primary land use has been for livestock production.

NATURAL HAZARDS: Fording the river poses a potential hazard.

EXOTICS: Poa pratensis is abundant in many areas and Bromus inermis and Cirsium arvense are often well represented.

OFF-SITE LAND USES: Alteration of natural flows of the Big Hole River could change the hydrologic disturbance characteristics that are vital to maintain the communities present.

INFORMATION NEEDS: Search site for occurrences of Muhlenbergia minutissima.

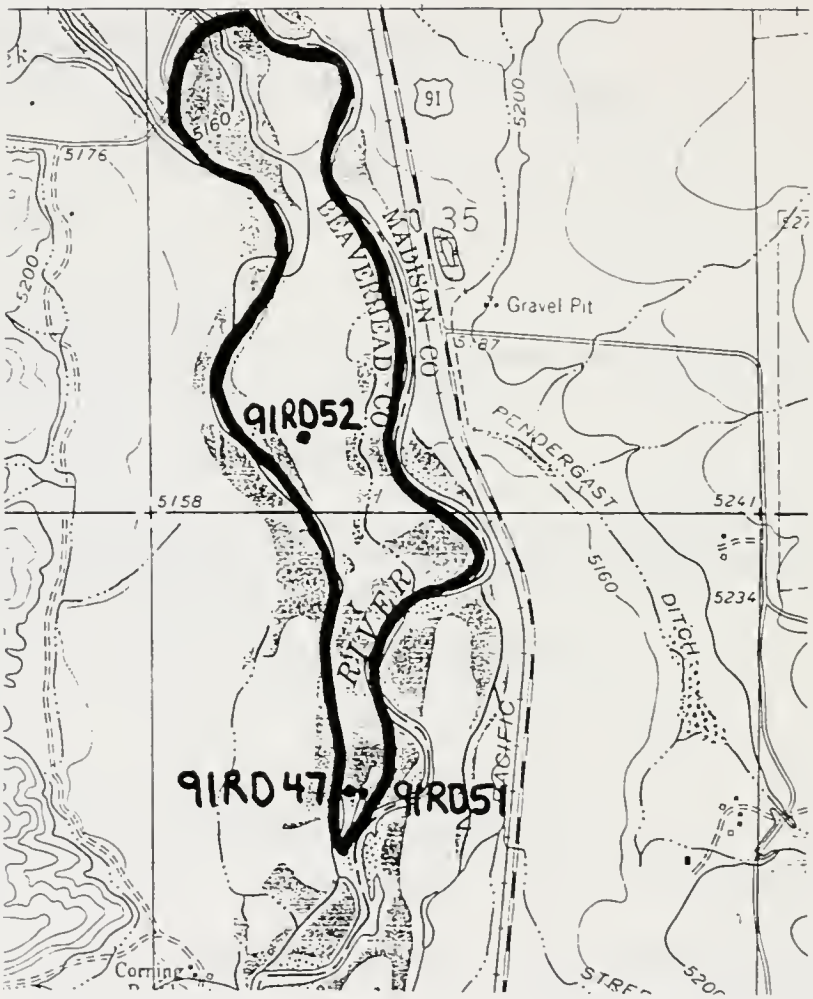
MANAGEMENT NEEDS: Many of the community occurrences have been degraded by livestock use and have EO ranks of C or D. However, a sufficient pool of native species is present such that recovery is likely following relief from heavy grazing pressure.

MANAGEMENT COMMENTS:

ELEMENT OCCURRENCE INFORMATION:

NAME:	GRANK:	SRANK:	REF:
POPULUS TRICHOCARPA/CORNUS STOLONIFERA CT	G4	S4	003
PHALARIS ARUNDINACEA CT	G4	S4	001
AGROPYRON SMITHII PA	G4	S3	002

OWNERSHIP/MANAGEMENT: BLM: BUTTE DISTRICT, DILLON RESOURCE AREA



Location of sample plots within the Hahnkamp Island site. The map shown is a portion of the USGS 7.5' Earls Gulch quadrangle.

Site Basic Record
HOGBACK

From Glen, proceed south on pavement 7.4 miles to a gravel crossroad. The Hogback is the prominent 3-mile-long ridge northeast of this intersection.

The Hogback is a quartzite ridge ca. 3.5 miles long, 1 mile wide, and with a relief of ca. 700 feet. The vegetation at higher elevations is predominantly Juniperus scopulorum woodlands and Cercocarpus ledifolius shrublands, while the lower elevations feature Artemisia tridentata shrublands and degraded Agropyron spicatum grasslands.

COUNTY: Beaverhead

USGS QUADRANGLE: BLOCK MOUNTAIN

TOWNSHIP-RANGE: 005S008W SECTION: 10
QUARTER/ADDITIONAL SECTIONS: Portions of 2, 3, 9, 10, 11, 15, 16, 17, 20 and 21.

BOUNDING RECTANGLE: S: 451330N N: 452615N E: 1123315W W: 1123650W

BOUNDARY JUSTIFICATION: The primary boundary contains the most pristine vegetation occurrences observed on the Hogback. The east, north and south boundaries follow the topographic discontinuity and road corridor at the base of the Hogback. The western boundary is defined by north-south trending major drainages.

APPROXIMATE ACREAGE: 2500.00

GENERAL RATING: 2
A and B ranked G3 community occurrences are present.

BIODIVERSITY SIGNIFICANCE: B3
A and B ranked G3 community occurrences are present.

OTHER VALUES: V2
The Hogback is a prominent and highly aesthetic feature of the landscape.

PROTECTION URGENCY: P3
Mining activity appears to be on the increase. Deer overbrowsing and heavy livestock grazing threaten portions of the site. Consider protection of the most pristine portions of the site via ACEC designation.

MANAGEMENT URGENCY: M3
Control deer populations or Cercocarpus ledifolius stands could significantly degrade. Closely regulate cattle grazing to minimize their impacts.

CONSERVATION INTENT: Recommend establishment of a BLM ACEC.

PROTECTION COMMENTS: The upper portions of the Hogback are by coincidence protected from most use by domestic stock by very steep and rocky slopes.

LAND USE: New and old mines are scattered throughout the site. Cattle use dominates on the less steep, less rocky sites. Deer use is heavy, especially within Cercocarpus ledifolius stands.

NATURAL HAZARDS: Cliffs, large boulders and mine shafts present hazards. Rattlesnakes are common in the area.

EXOTICS: Bromus tectorum is present sporadically and may increase with grazing and mining disturbance.

OFF-SITE LAND USES: Cattle from the heavily grazed adjacent areas may move onto the flatter, more accessible portions of the site, and cause increased degradations.

INFORMATION NEEDS:

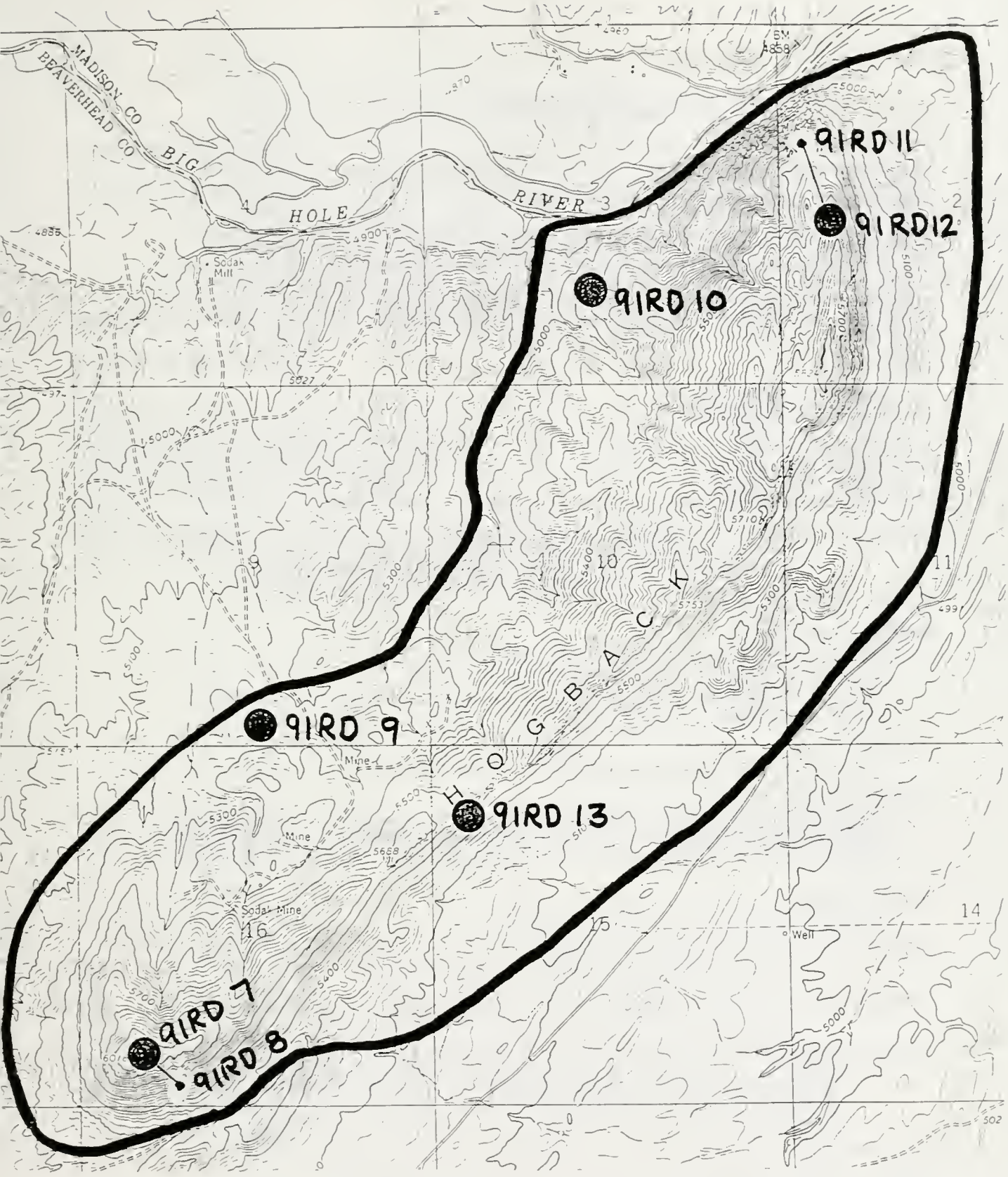
MANAGEMENT NEEDS: Consider establishment of a Hogback ACEC and severely restrict or exclude mining within the ACEC. Control deer populations to reduce or reverse degradataion of Cercocarpus ledifolius stands.

MANAGEMENT COMMENTS:

ELEMENT OCCURRENCE INFORMATION:

NAME:	GRANK:	SRANK:	REF:
JUNIPERUS SCOPULORUM/CERCOCARPUS LEDIFOLIUS PA	G3	S3	001
JUNIPERUS SCOPULORUM/CERCOCARPUS LEDIFOLIUS PA	G3	S3	002
JUNIPERUS SCOPULORUM/CERCOCARPUS LEDIFOLIUS PA	G3	S3	003
ARTEMISIA TRIDENTATA/AGROPYRON SPICATUM PA	G5	S5	020
ARTEMISIA TRIDENTATA/AGROPYRON SPICATUM PA	G5	S5	021

OWNERSHIP/MANAGEMENT: BLM: BUTTE DISTRICT, DILLON RESOURCE AREA
STATE LAND - UNDESIGNATED



Location of sample plots within the Hogback site. The map shown is a portion of the USGS 7.5' Block Mountain quadrangle.

Site Basic Record
HUMBUG SPIRES

From Divide (town), proceed east one mile on State Highway 43 to Interstate 15. Drive under the overpass and park by the fence on the east side of the interstate. The site is along the mountain front, 1.25 miles due east.

Three major parent material types occur on this site. Limestone outcrops in the north provide habitat for highly-ranked populations of Arabis fecunda. Granitic parent materials dominate most of the remaining part of the site except for the far south, where a schist-dominated ridge occurs. Throughout this site along the western front of the Highland Mountains, forests and woodlands co-dominated by Cercocarpus ledifolius occur. These community types are rare in Montana and, in combination with Arabis fecunda, make this site a significant biodiversity resource.

COUNTY: Silver Bow

USGS QUADRANGLE: TUCKER CREEK
MELROSE

TOWNSHIP-RANGE: 001S009W SECTION: 15
QUARTER/ADDITIONAL SECTIONS: portions of 2, 3, 10, 11, 14, 15, 22 and 23

BOUNDING RECTANGLE: S: 454340N N: 454630N E: 1124025W W: 1124230W

BOUNDARY JUSTIFICATION: The northernmost boundary encompasses a large population of Arabis fecunda. All other boundaries encompass rare conifer/Cercocarpus ledifolius communities along the mountain front between Lime Gulch and Moose Creek.

APPROXIMATE ACREAGE: 1500.00

GENERAL RATING: 1
A large, high-quality occurrence of Arabis fecunda is present.

BIODIVERSITY SIGNIFICANCE: B2
A large, high-quality occurrence of Arabis fecunda, rare plant communities, and Draba densifolia are present.

OTHER VALUES: V2
The highly aesthetic Humbug Spires form the backdrop for portions of this site.

PROTECTION URGENCY: P2
Rare species and rare communities are well-represented on the site. Mining withdrawal and protection of sensitive species locations from domestic stock grazing disturbances may be desireable. Water developments have been improved in the area, so enhanced livestock use poses a threat.

MANAGEMENT URGENCY: M3
Fencing may be needed to protect sensitive elements.

CONSERVATION INTENT: Expand the Humbug Spires Primitive Area boundary to encompass the northern portion of this site containing Arabis fecunda.

PROTECTION COMMENTS: The BLM is aware of the Arabis fecunda occurrences in the northern portion of the site, and is currently considering protection options.

LAND USE: Mine prospects and shafts are scattered throughout the site and have caused localized degradation. Most of the site is relatively steep topography, with low forage volumes and has received low to moderate livestock grazing (relative to heavily-grazed adjacent grasslands and shrublands). Deer browsing of Cercocarpus ledifolius has been heavy in some locations. Occasional tree stumps are present.

NATURAL HAZARDS: Mine shafts and granite cliffs could be hazardous.

EXOTICS: No exotic species currently appear to pose a threat to this site.

OFF-SITE LAND USES: Most of the higher country above the site is within the Humbug Spires Primitive Area and is thus relatively protected and managed in a way that would minimize

threats to this site. Lower elevations are heavily-grazed grasslands and shrublands, and cattle influx from these areas threaten the site.

INFORMATION NEEDS: Sections 10 and 11 should be more thoroughly surveyed to assess Arabis fecunda population patterns.

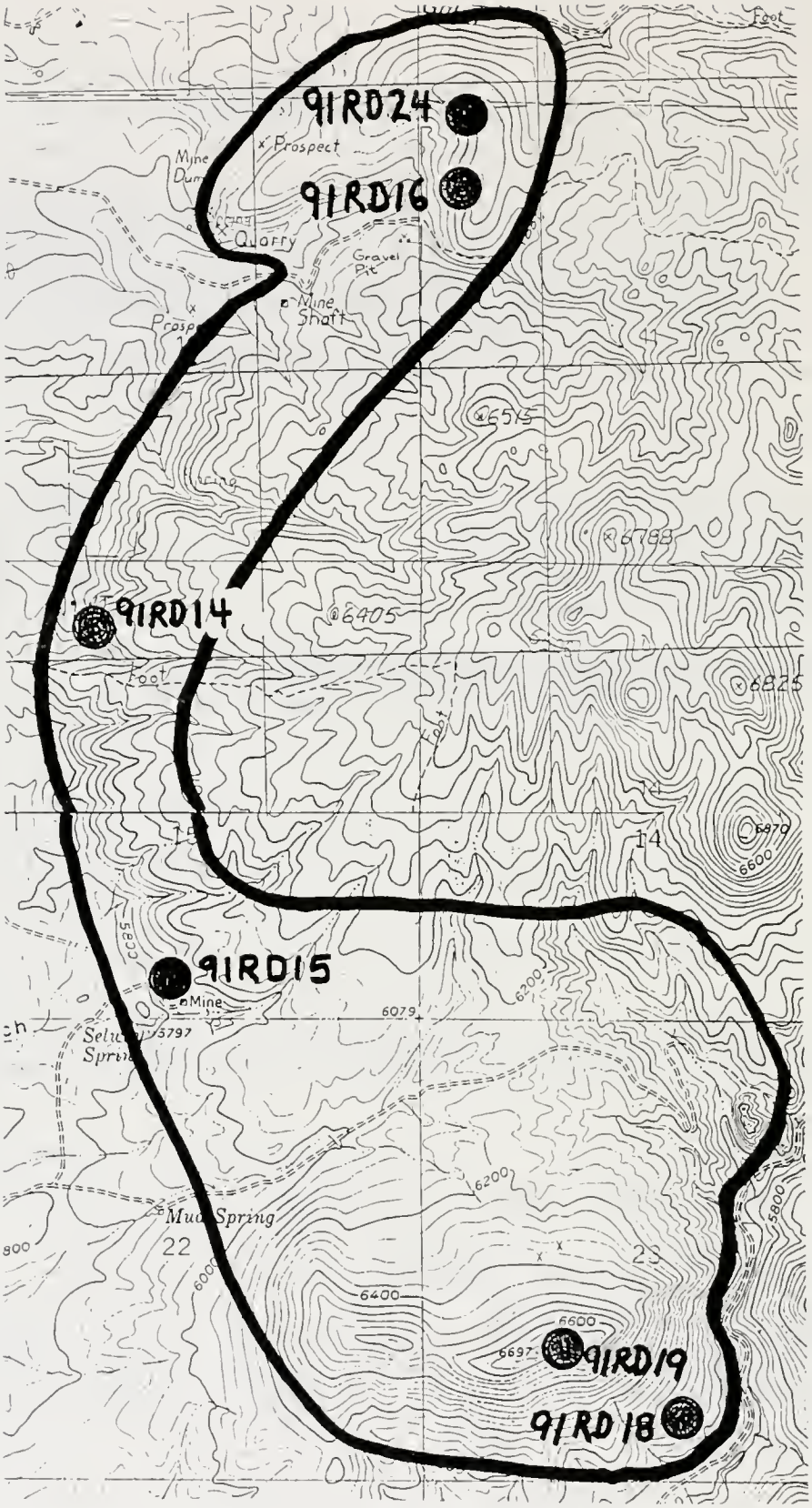
MANAGEMENT NEEDS: The priority area within this site is the Arabis fecunda ridge in the northwest quarter of section 11. It would be desirable to expand the Humbug Spires Primitive Area to include this particularly significant portion of the site. A fence to exclude livestock would also be helpful along the eastern and southern boundaries of this occurrence. The western and northern boundaries are already fenced.

MANAGEMENT COMMENTS: A portion of the site is within the BLM's Humbug Spires Primitive Area.

ELEMENT OCCURRENCE INFORMATION:

NAME:	GRANK:	SRANK:	REF:
JUNIPERUS SCOPULORUM/CERCOCARPUS LEDIFOLIUS PA	G3	S3	005
PINUS FLEXILIS/CERCOCARPUS LEDIFOLIUS PA	G3?	S3?	001
PSEUDOTSUGA MENZIESII/CERCOCARPUS LEDIFOLIUS PA	G3?	S3?	001
PSEUDOTSUGA MENZIESII/CERCOCARPUS LEDIFOLIUS PA	G3?	S3?	002
PSEUDOTSUGA MENZIESII/CERCOCARPUS LEDIFOLIUS PA	G3?	S3?	003
ARTEMISIA TRIDENTATA/AGROPYRON SPICATUM PA	G5	S5	023

OWNERSHIP/MANAGEMENT: BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA
HUMBUG SPIRES PRIMITIVE AREA
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)



Location of sample plots within the Humbug Spires site. The map shown is a portion of the USGS 7.5' Tucker Creek and Melrose quadrangles.

Site Basic Record
JOHNSON CREEK EXCLOSURE

From Wise River (town), proceed west along State Highway 43 ca. 7.5 miles to a bridge crossing the Big Hole River. Ca. 0.2 mile after the bridge turn right onto a gravel road. Follow this road 3.5 miles to Johnson Creek. Take the first left off Johnson Creek road (0.2 mile from the Big Hole River). Follow this road 1 mile to exclosure.

The exclosure occurs on a wide ridge on quartzite derived soils. The exclosure was established in 1968 (pers. comm., Jack Jones, BLM, Butte). Approximate dimensions are 45m x 45m x 2.5m (0.5 acres). The vegetation within the exclosure is of the Artemisia tridentata/Festuca idahoensis community type. The surrounding vegetation outside the exclosure is a degraded (by grazing) version of the type with less than half the total grass cover in the exclosure (70%). A contiguous 0.5-acre exclosure with a cattle exclusion fence exhibits intermediate degradation relative to the exclosure with the 2.5m-tall fence and the surrounding open range.

COUNTY: Silver Bow

USGS QUADRANGLE: DICKIE HILLS

TOWNSHIP-RANGE: 001N011W SECTION: 18
QUARTER/ADDITIONAL SECTIONS: NW4SW4

BOUNDING RECTANGLE: S: N: E: W:

BOUNDARY JUSTIFICATION:

APPROXIMATE ACREAGE: 1.00

GENERAL RATING: 5
No G3 element present.

BIODIVERSITY SIGNIFICANCE: B4
High-quality occurrence of a common community type, protected in a small (1 acre) exclosure.

OTHER VALUES: V4

PROTECTION URGENCY: P5
Continue current excellent maintenance of exclosure fencing.

MANAGEMENT URGENCY: M4
Consider reducing livestock stocking on adjacent lands since heavy grazing on these lands will likely eventually impact this small exclosure via edge effects.

CONSERVATION INTENT: Maintain as an exclosure.

PROTECTION COMMENTS: Protected as an exclosure by the BLM since 1968.

LAND USE: The site has been protected from grazing by large herbivores (e.g., cattle, deer, elk, antelope) in the 2.5m fenced exclosure; cattle from the the short fenced exclosure since 1968.

NATURAL HAZARDS: None.

EXOTICS: No exotic species currently appear to pose a threat to this site.

OFF-SITE LAND USES: Surrounding lands are being heavily grazed by cattle. The exclosure is small enough that degradation of adjacent lands by heavy grazing may eventually impact this site via hydrologic alteration, shifts in surrounding seed pools, and movement of sediment to site from adjacent areas with enhanced erosion.

INFORMATION NEEDS: The BLM monitors this exclosure. Contact the BLM office in Butte for periodic updates on vegetation characteristics.

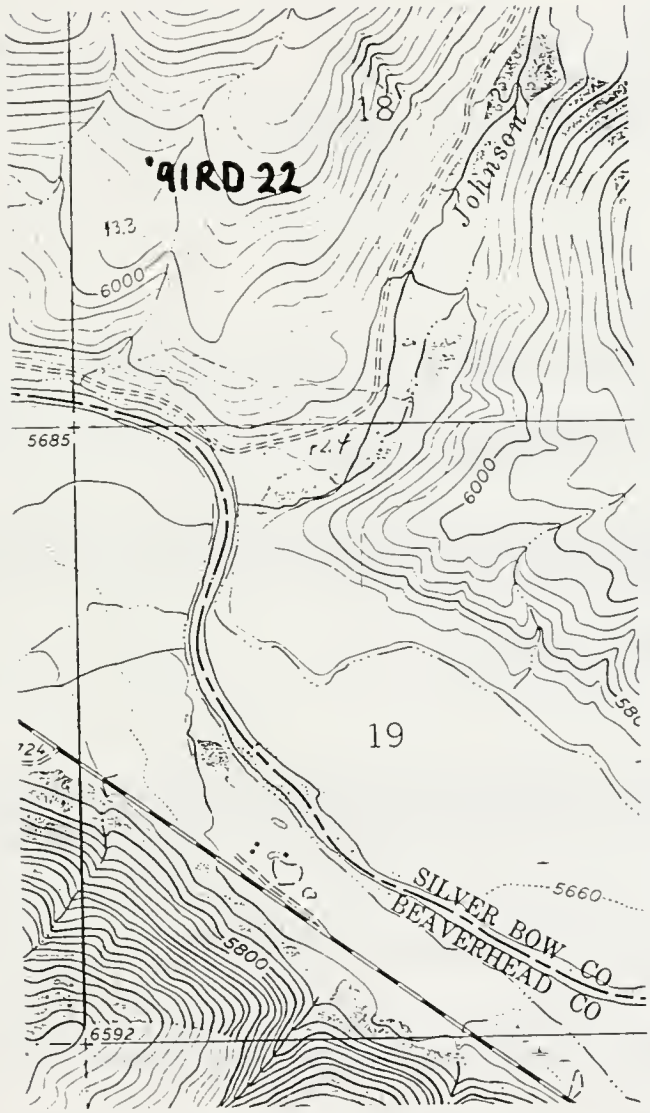
MANAGEMENT NEEDS: Consider reducing livestock numbers on adjacent lands to protect the integrity of the exclosure.

MANAGEMENT COMMENTS:

ELEMENT OCCURRENCE INFORMATION:

NAME:	GRANK:	SRANK:	REF:
ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS PA	G5	S4	013

OWNERSHIP/MANAGEMENT: BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA



Location of sample plot within the Johnson Creek Exclosure. The map shown is a portion of the USGS 7.5' Dickie Hills quadrangle.

Site Basic Record
MAIDEN EXCLOSURE

From the Moose Creek Road exit on Interstate 15 (exit #99) south of Divide (town), proceed north and west on the frontage road 0.5 mile to a junction with a gravel road. Take this road south 1.2 miles to a Y intersection. Go left, then right ca. 1 mile to a bridge and cross the Big Hole River. The exclosure is to the right.

The site is an old point bar on the Big Hole River. The exclosure was established in 1984 (pers. comm., Jack Jones, BLM, Butte).

COUNTY: Beaverhead

USGS QUADRANGLE: MELROSE

TOWNSHIP-RANGE: 001S009W SECTION: 32
QUARTER/ADDITIONAL SECTIONS: NE4SE4

BOUNDING RECTANGLE: S: 454200N N: 454214N E: 1124405W W: 1124412W

BOUNDARY JUSTIFICATION:

APPROXIMATE ACREAGE:

GENERAL RATING: 5
No G3 element present.

BIODIVERSITY SIGNIFICANCE: B4
The Elymus cinereus community type present is tentatively ranked G4S2?.

OTHER VALUES: V2
The site provides a combination of quality riparian wildlife habitat and a moderately large area relatively protected from domestic grazing.

PROTECTION URGENCY: P1
The fence at the northwest corner of the exclosure does not extend to the river and is ineffective in keeping cattle out. This fence needs to be extended and a fence along the river may need to be installed to prevent cattle entry.

MANAGEMENT URGENCY: M3
Remove all Centaurea maculosa plants.

CONSERVATION INTENT: Maintain as an exclosure.

PROTECTION COMMENTS:

LAND USE: The site has largely been protected from livestock grazing since exclosure establishment in 1984. Prior to exclosure establishment, the site was evidently heavily used by livestock. Also, a portion of the site was used as a debris dump prior to exclosure establishment.

NATURAL HAZARDS: None.

EXOTICS: Centaurea maculosa, Bromus tectorum, Poa pratensis, and Phleum pratense are all well represented at various locations within the exclosure and pose a threat to the quality of the vegetation present.

OFF-SITE LAND USES: Surrounding uplands are moderately to heavily grazed and a large quarry ocurs adjacent to the exclosure. These factore may potentially result in degradation of vegetation quality within the exclosure.

INFORMATION NEEDS: The BLM monitors this exclosure. Contact the BLM office in Butte for periodic updates on vegetation characteristics.

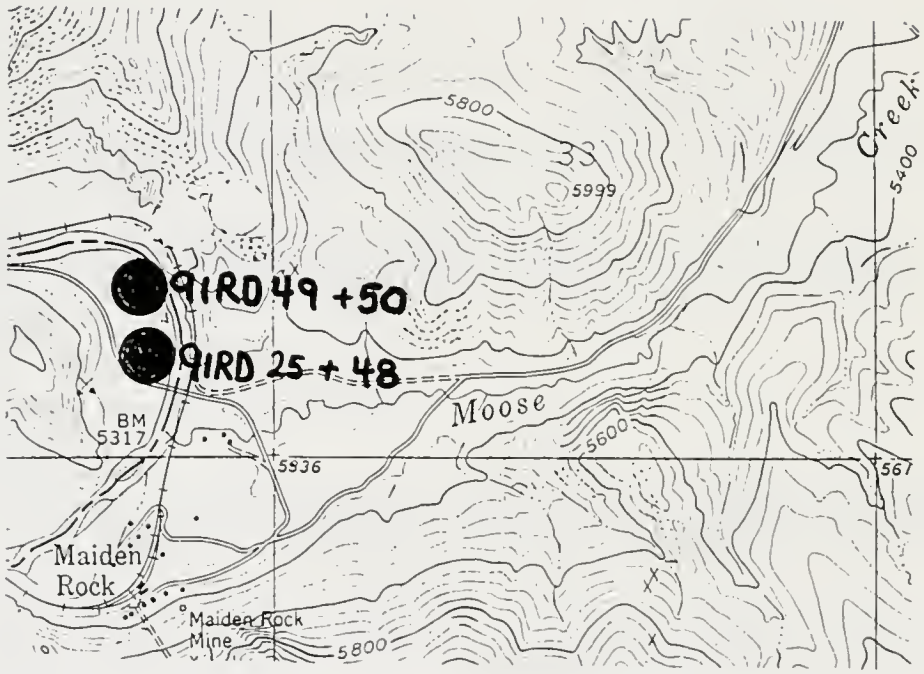
MANAGEMENT NEEDS: Upgrade fence adjacent to river and perhaps install a fence along the river. Remove Centaurea maculosa plants.

MANAGEMENT COMMENTS:

ELEMENT OCCURRENCE INFORMATION:

NAME:	GRANK:	SRANK:	REF:
POPULUS TRICHOCARPA/CORNUS STOLONIFERA CT	G4	S4	004
ARTEMISIA TRIDENTATA/AGROPYRON SPICATUM PA	G5	S5	024
SALIX EXIGUA CT	G5	S4	001
ELYMUS CINEREUS PA	G4	S2?	001

OWNERSHIP/MANAGEMENT: BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)



Location of sample plots within the Maiden Rock Exclosure. The map shown is a portion of the USGS 7.5' Melrose quadrangle.

Site Basic Record
MOUTH OF QUARTZ HILL GULCH

From Dewey, take Hwy 43 west 0.25 mile to the Quartz Hill Gulch turnoff. Site starts at turnoff and extends up Quartz Hill Gulch ca. 1.3 miles.

Cercocarpus ledifolius/Agropyron spicatum and Pinus flexilis/Cercocarpus ledifolius communities on limestone derived soils. Much bare soil and coarse fragment material is exposed on the ground surface. The most biologically significant feature of the site is the presence of thousands of Arabis fecunda plants scattered about in patches within the site.

COUNTY: Beaverhead

USGS QUADRANGLE: DEWEY

TOWNSHIP-RANGE: 001S010W SECTION: 08
QUARTER/ADDITIONAL SECTIONS: E2,5SE4,17NW4NE4

BOUNDING RECTANGLE: S: 454622N N: 454637N E: 1125200W W: 1125155W

BOUNDARY JUSTIFICATION: Includes large populations of Arabis fecunda and occurrences of the Pinus flexilis/Cercocarpus ledifolius community type.

APPROXIMATE ACREAGE: 400.00

GENERAL RATING: 1
A G2 element is present.

BIODIVERSITY SIGNIFICANCE: B2
One of the best examples of a low elevation Arabis fecunda (G2/S2) population.

OTHER VALUES: V2
Heavily-used winter forage area for deer and elk.

PROTECTION URGENCY: P2
Cattle will likely degrade the lower and mid slopes of this site unless the site is protected from them.

MANAGEMENT URGENCY: M2
Fence all or portions of the site to assist in regulating cattle use. Remove any Centaurea maculosa plants that may encroach on site.

CONSERVATION INTENT: Recommend establishment of a BLM ACEC.

PROTECTION COMMENTS:

LAND USE: Although the site is mostly steep slopes with low forage volumes, the abundant cattle in the flatter areas do periodically move onto the slopes causing considerable soil damage. These cattle impacts are exacerbated by deer use in winter. The soils present on the slopes are very erosive, so even rare access by cattle can have significant impacts. A graveyard is within the site boundaries.

NATURAL HAZARDS: None known.

EXOTICS: Centaurea maculosa is currently limited to scattered individuals along the Big Hole River.

OFF-SITE LAND USES:

INFORMATION NEEDS:

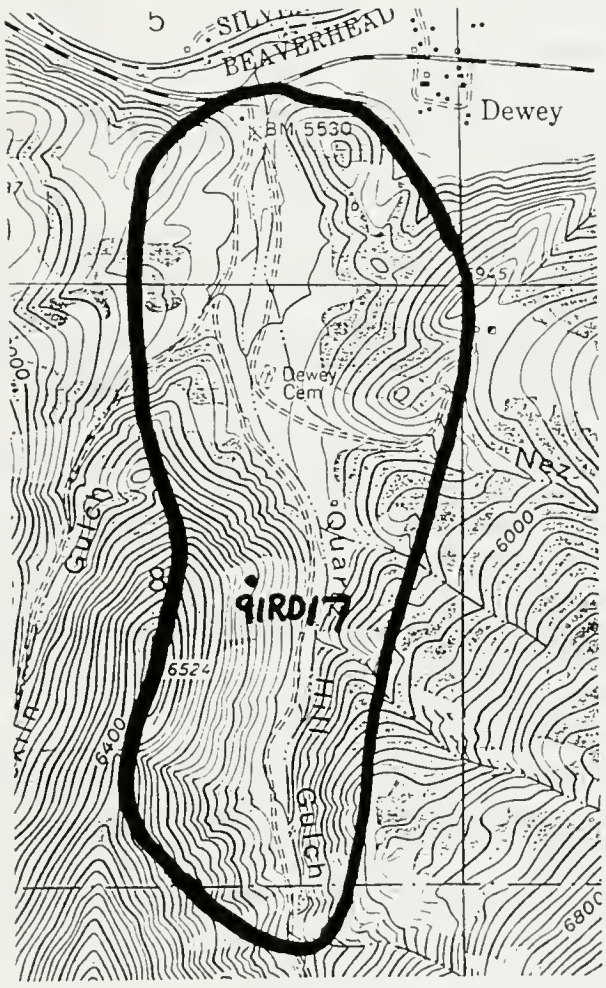
MANAGEMENT NEEDS: Consider protecting the site from cattle use via fencing. Restrict Arabis fecunda monitoring/observation activities to defined trails. Random human movement in the vicinity of the Arabis fecunda "cage" appears to be causing significant soil disturbance in that area.

MANAGEMENT COMMENTS:

ELEMENT OCCURRENCE INFORMATION:

NAME:	GRANK:	SRANK:	REF:
PINUS FLEXILIS/CERCOCARPUS LEDIFOLIUS PA	G3?	S3?	002
ARABIS FECUNDA	G2	S2	006

OWNERSHIP/MANAGEMENT: BLM: BUTTE DISTRICT, DILLON RESOURCE AREA



Location of sample plot within the Mouth of Quartz Hill Gulch site. The map shown is a portion of the USGS 7.5' Dewey quadrangle.

Site Basic Record
NEMESIS MOUNTAIN

From Monida, proceed east on the main Centennial Valley gravel road 44.5 miles to Red Rock Pass and park. Take the Continental Divide Trail 1.5 miles south the the northern edge of the site.

Nemesis Mountain is a prominent metamorphic rock peak with 2700 feet of relief relative to the Alaska Basin directly to the north. The upper elevations of the mountain are characterized by extensive areas of scree and Pinus albicaulis-Abies lasiocarpa communities. Within the scree and forested scree sites, patches of a state rare plant, Lesquerella (paysonii or prostrata), are present.

COUNTY: Beaverhead

USGS QUADRANGLE: MOUNT JEFFERSON

TOWNSHIP-RANGE: 014S001E SECTION: 25
QUARTER/ADDITIONAL SECTIONS: Portions of 25 and 36 in T14SR1E, and 30 and 31 in T14SR2E.

BOUNDING RECTANGLE: S: 443406N N: 443513N E: 1113130W W: 1113313W

BOUNDARY JUSTIFICATION: The primary boundary generally follows the 8000-foot contour around Nemesis Mountain. This boundary contains all the known Lesquerella sites on Nemesis Mountain.

APPROXIMATE ACREAGE: 700.00

GENERAL RATING: 2
An S1 plant species is present (Lesquerella paysonii or Lesquerella prostrata).

BIODIVERSITY SIGNIFICANCE: B3
Large populations of an S1 plant species are present. Populations were observed on ridges and upper slopes with open Pinus albicaulis-Abies lasiocarpa forests southeast of Nemesis Mountain and on a scree-covered avalanche chute to the northeast of the mountain.

OTHER VALUES: V2
Nemesis Mountain is a prominent and highly aesthetic feature of the landscape.

PROTECTION URGENCY: P4
The slopes are too rocky and steep for most domestic stock and it is doubtful the site is threatened by anthropogenic disturbance. Consider establishment of a Nemesis Mountain ACEC.

MANAGEMENT URGENCY: M4
Carefully regulate use by sheep or other stock capable of grazing the steep and rocky country which characterizes the site.

CONSERVATION INTENT: Recommend establishment of a BLM ACEC.

PROTECTION COMMENTS: Most of the Nemesis Mountain site is by coincidence protected from timber harvest and most livestock use by very steep and rocky slopes.

LAND USE: The steep rocky slopes of this site have been, and are now, primarily used for wildlife habitat and watershed values.

NATURAL HAZARDS: Numerous cliffs, steep rocky scree, snow avalanches, and severe electrical storms constitute hazards.

EXOTICS: None observed.

OFF-SITE LAND USES:

INFORMATION NEEDS: Identify and describe the full range of community types present on the site. More thoroughly survey the site for occurrences of rare Lesquerella species.

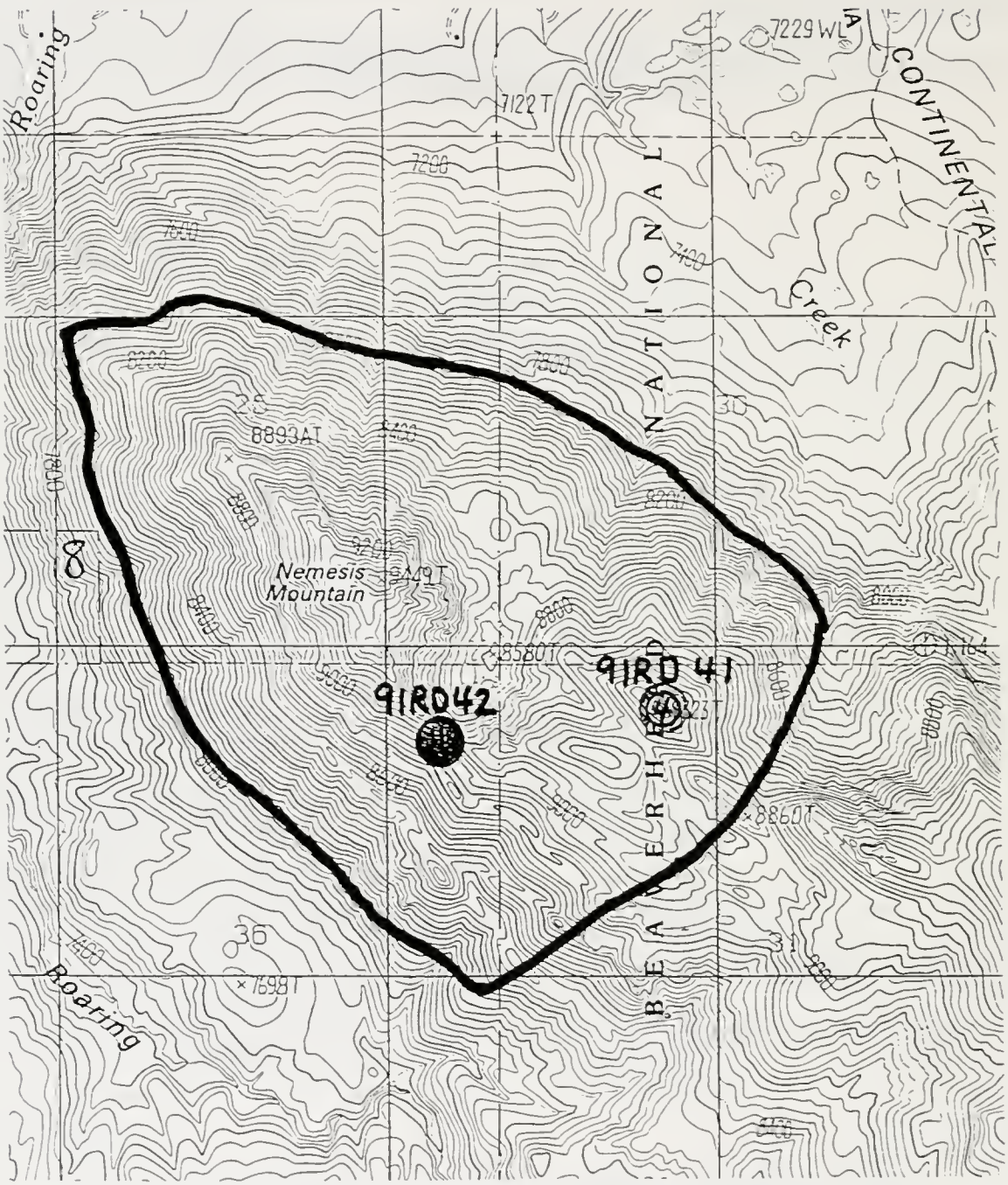
MANAGEMENT NEEDS: Designate a Nemesis Mountain ACEC focusing on protection of Lesquerella paysonii or L. prostrata and pristine subalpine vegetation.

MANAGEMENT COMMENTS:

ELEMENT OCCURRENCE INFORMATION:

NAME:	GRANK:	SRANK:	REF:
PINUS ALBICAULIS-ABIES LASIOCARPA PA	G5	S5	009
PINUS ALBICAULIS-ABIES LASIOCARPA PA	G5	S5	010

OWNERSHIP/MANAGEMENT: BEAVERHEAD NATIONAL FOREST, MADISON RANGER DISTRICT
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA



Location of sample plots within the Nemesis Mountain site. The map shown is a portion of the USGS 7.5' Mount Jefferson quadrangle.

Site Basic Record
SANDY HOLLOW

From Glen, proceed south on pavement ca. 0.75 mile to the Burma Road. Take this road 7.5 miles to Sandy Hollow. The site extends to the west 1.5 mile and to the north 3 miles.

The site is characterized by anticlinal folds of various sedimentary strata, including limestone, conglomerate, shale, etc. These folds are exposed at the surface as ridges extending from the north end of the site 3.5 miles to the south end of the site, where they have been eroded by the Big Hole River and buried by sediments. The vegetation present varies from Juniperus scopulorum woodlands, to Artemisia tridentata and Cercocarpus ledifolius shrublands and Agropyron spicatum grasslands.

COUNTY: Madison

USGS QUADRANGLE: BLOCK MOUNTAIN

TOWNSHIP-RANGE: 004S008W SECTION: 27
QUARTER/ADDITIONAL SECTIONS: Portions of 14, 15, 22, 23, 26, 27, 34 and 35 in T4SR8W, and 2 and 3 in T5SR8W.

BOUNDING RECTANGLE: S: 452605N N: 452915N E: 1123315W W: 1123508W

BOUNDARY JUSTIFICATION: The site boundary encompasses an area of extremely high diversity in sedimentary strata exposures and relatively pristine vegetation occurrences on steep slopes. Most of the primary boundary follows ridgelines. The southern boundary is defined by the Burma Road along the Big Hole River.

APPROXIMATE ACREAGE: 2400.00

GENERAL RATING: 2
A G2? community element is present: Juniperus scopulorum/Artemisia tridentata.

BIODIVERSITY SIGNIFICANCE: B3
G2? and G3 community elements are present: Juniperus scopulorum/Artemisia tridentata, J. scopulorum/Cercocarpus ledifolius, and Agropyron spicatum/Oryzopsis hymenoides.

OTHER VALUES: V2
The site has a high diversity of anticlinal outcrops of sedimentary rocks in a small area.

PROTECTION URGENCY: P3
Heavy grazing by cattle will likely cause site degradation.

MANAGEMENT URGENCY: M3
Prevent overgrazing on the site.

CONSERVATION INTENT:

PROTECTION COMMENTS:

LAND USE: Cattle grazing has been a primary land use. Since much of the site features steep, rocky and arid conditions, most cattle use has occurred on the drainage bottoms and less steep lower slopes. Many of the mid slopes, upper slopes and ridges have been used primarily for wildlife and watershed values.

NATURAL HAZARDS: Cliffs and rattlesnakes may constitute hazards.

EXOTICS: Bromus tectorum likely poses the greatest threat. It is abundant in some areas along Sandy Hollow; however, it does not presently appear to be extending its range on the site.

OFF-SITE LAND USES: Some surrounding lands are being heavily grazed and increaser species (particularly Opuntia polyacantha) are becoming more prominant. The altered vegetation composition of these sites may begin affecting the available seed pool to the Sandy Hollow site over the long term.

INFORMATION NEEDS:

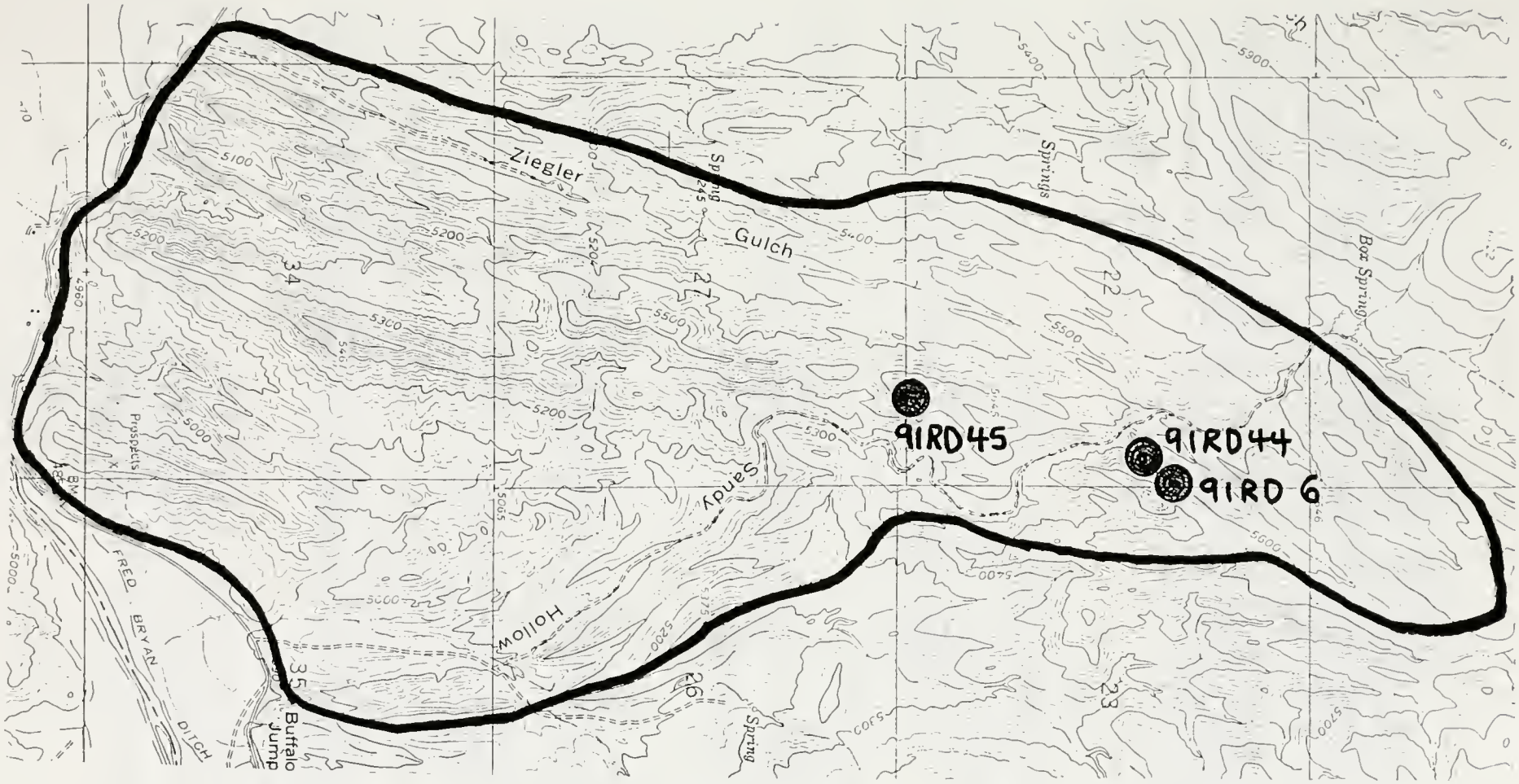
MANAGEMENT NEEDS: Control livestock numbers to prevend degradation of site quality.

MANAGEMENT COMMENTS:

ELEMENT OCCURRENCE INFORMATION:

NAME:	GRANK:	SRANK:	REF:
JUNIPERUS SCOPULORUM-ARTEMISIA TRIDENTATA	G2?	S2?	002
JUNIPERUS SCOPULORUM/CERCOCARPUS LEDIFOLIUS PA	G3	S3	006
AGROPYRON SPICATUM-ORYZOPSIS HYMENOIDES PA	G3?	S2?	002

OWNERSHIP/MANAGEMENT: BLM: BUTTE DISTRICT, DILLON RESOURCE AREA



Location of sample plots within the Sandy Hollow site. The map shown is a portion of the USGS 7.5' Block Mountain quadrangle.

Site Basic Record
SCUDDER CREEK EXCLOSURE

From exit #59 on Interstate 15 (south of Dillon), proceed west on State Highway 278 for 25 miles to the Polaris turnoff. Take the gravel Polaris road 2 miles north to a jeep trail leading east through a gate. Take this jeep trail 1.3 miles to a faint jeep trail leading south. Park and walk 0.25 mile south on this trail. The exclosure is on the ridge to the east.

The sampled portion of the exclosure was established in 1963 (pers. comm., Jack Jones, BLM, Butte). The exclosure occurs on a narrow ridge on limestone-derived soils. An 8-foot-tall fence surrounds the exclosure, effectively excluding deer, elk, livestock, and other large animals. the vegetation within the exclosure and in the immediate surroundings is of the Pinus flexilis/Cercocarpus ledifolius community type. Cercocarpus ledifolius plants on the site, but outside the exclosure, are heavily browsed by deer and elk.

COUNTY: Beaverhead

USGS QUADRANGLE: POLARIS

TOWNSHIP-RANGE: 006S012W SECTION: 20
QUARTER/ADDITIONAL SECTIONS: Portions of 16, 17, 20 and 21.

BOUNDING RECTANGLE: S: 451810N N: 451833N E: 1130513W W: 1130540W

BOUNDARY JUSTIFICATION: The boundaries follow the Scudder Creek road to the northwest, the exclosure access road to the southwest, a secondary drainage bottom to the southeast, and tertiary drainages to the northeast. The exclosure and adjacent lands are contained within these boundaries.

APPROXIMATE ACREAGE: 50.00

GENERAL RATING: 2
S1 plant species are present (Arenaria kingii and either Lesquerella paysonii or L. prostrata). A G3? community type is present (Pinus flexilis/Cercocarpus ledifolius).

BIODIVERSITY SIGNIFICANCE: B3
S1 plant species are present, as is a G3? community type.

OTHER VALUES: V4

PROTECTION URGENCY: P3
The existing exclosure is small (ca. 0.5 acre) and is likely subjected to significant edge effects from the surrounding heavily browsed areas. Perhaps enlarge enclosed area to reduce edge effects. Continue current excellent maintenance of fencing.

MANAGEMENT URGENCY: M4
Reduce deer and elk numbers on lands outside the exclosure, as continued heavy use of these lands may cause significant edge disturbance within the exclosure.

CONSERVATION INTENT: Maintain exclosure on site.

PROTECTION COMMENTS: The exclosure on the site is divided into four segments established in 1953, 1963, 1973 and 1983.

LAND USE: The sampled portion of the exclosure has been protected from grazing by large herbivores since 1963. Adjacent lands are being heavily browsed by elk and deer, and moderately grazed by cattle.

NATURAL HAZARDS: None known.

EXOTICS: No exotic plant species currently appear to pose a threat.

OFF-SITE LAND USES: Degradation of adjacent lands by overbrowsing/overgrazing may eventually degrade the vegetation of the exclosure via edge effects.

INFORMATION NEEDS: The BLM monitors this exclosure. Contact the BLM office in Butte or Dillon for periodic updates on vegetation characteristics.

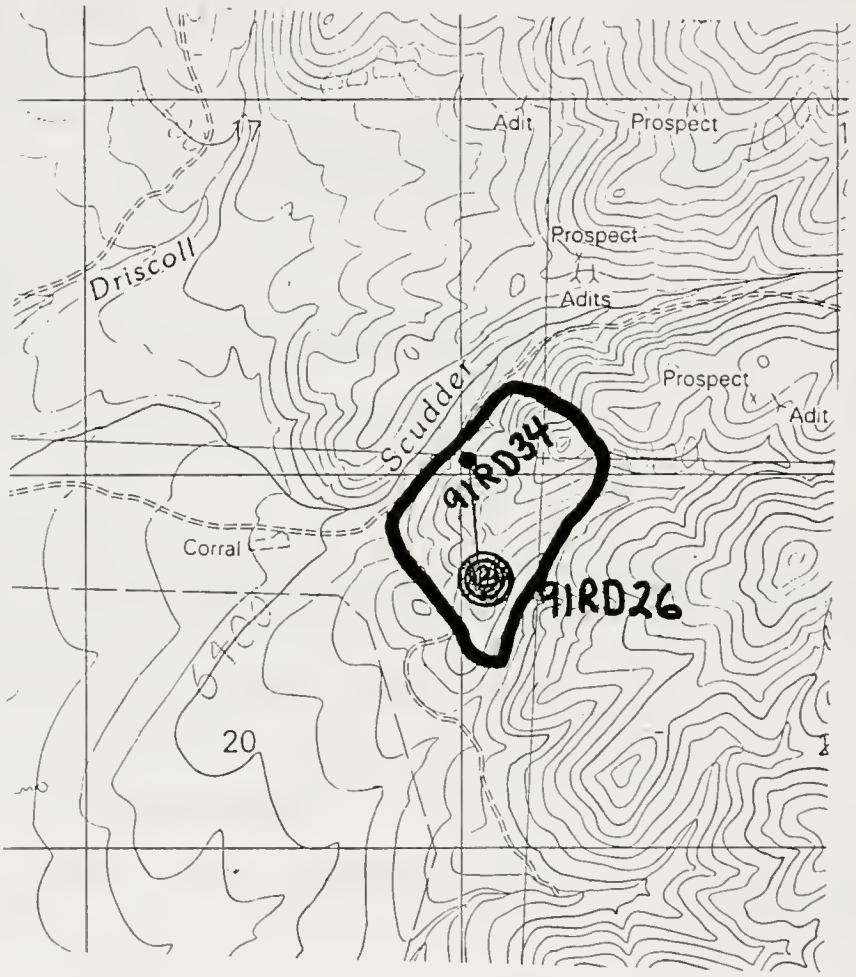
MANAGEMENT NEEDS: Since the exclosure is small (ca. 0.5 acre), it is highly subject to edge effects, particularly when the surrounding vegetation is being heavily used as it is here. The size of the exclosure should be increased to reduce edge effects and thought should be given to reduce deer, elk and livestock numbers on adjacent lands to protect the integrity of the exclosure and the site.

MANAGEMENT COMMENTS:

ELEMENT OCCURRENCE INFORMATION:

NAME:	GRANK:	SRANK:	REF:
PINUS FLEXILIS/CERCOCARPUS LEDIFOLIUS PA	G3?	S3?	003

OWNERSHIP/MANAGEMENT: BLM: BUTTE DISTRICT, DILLON RESOURCE AREA



Location of sample plots within the Scudder Creek Exclosure site. The map shown is a portion of the USGS 7.5' Polaris quadrangle.

Site Basic Record
SNOWSHOE CREEK

From Monida, proceed east on the main Centennial Valley gravel road ca. 10 miles to a dirt road leading north. Take this road 3 miles to a T intersection. Stay on the most prominent road leadin geast and continue for ca. 21 miles to a gate across a faint jeep trail leading north. Park and hike along this jeep trail and bushwhack 1.7 miles north to the site.

The site occurs on uplands immediately north of the Centennial Sandhills. The soil parent material is extrusive igneous in origin. The dominant plant community is Artemisia tripartita/Festuca idahoensis.

COUNTY: Beaverhead

USGS QUADRANGLE: LOWER RED ROCK LAKE

TOWNSHIP-RANGE: 013S001W SECTION: 18
QUARTER/ADDITIONAL SECTIONS: NW4

BOUNDING RECTANGLE: S: 444205N N: 444233N E: 1114611W W: 1114648W

BOUNDARY JUSTIFICATION:

APPROXIMATE ACREAGE: 80.00

GENERAL RATING: 5
No G3 elements present.

BIODIVERSITY SIGNIFICANCE: B4
S3 community types are present (Artemisia tripartita/Festuca idahoensis and Elymus cinereus/Festuca idahoensis), however, they are C and D-rank rated due to degradation by livestock grazing.

OTHER VALUES: V4

PROTECTION URGENCY: P2
The site is threatened by heavy livestock grazing and is currently weedy. The biological significance of the site probably does not warrant protection efforts.

MANAGEMENT URGENCY: M3
Continued degradation of vegetation quality will likely occur unless livestock numbers and grazing intensity are reduced.

CONSERVATION INTENT:

PROTECTION COMMENTS:

LAND USE: This site has primarily been used for livestock grazing and wildlife production. Cattle use has been moderate to heavy as evidenced by the high cover of many increaser plant species and the number of 1 to 2-year-old cattle droppings.

NATURAL HAZARDS: None observed.

EXOTICS: Bromus tectorum is common to abundant on disturbed slopes in the southern portion of the site and may increase on the site with continued disturbance.

OFF-SITE LAND USES: Most of the surrounding lands are also within grazing allotments that are receiving similar grazing pressure and land use as the Snowshoe Creek site.

INFORMATION NEEDS:

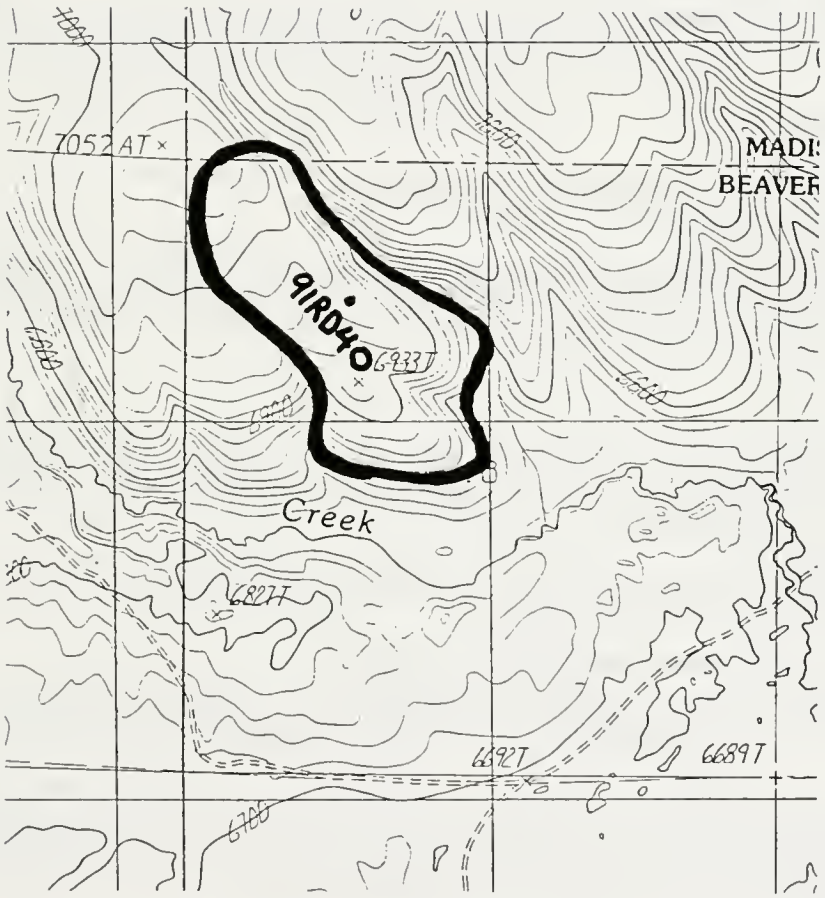
MANAGEMENT NEEDS: Increaser plants such as Bromus tectorum, Chrysothamnus viscidiflorus, Artemisia frigida, and Lupinus sericeus are currently well-represented to abundant on various portions of the site. Consideration should be given to reducing livestock numbers and grazing intensity.

MANAGEMENT COMMENTS:

ELEMENT OCCURRENCE INFORMATION:

NAME:	GRANK:	SRANK:	REF:
ARTEMISIA TRIPARTITA/FESTUCA IDAHOENSIS PA	G5	S3	005

OWNERSHIP/MANAGEMENT: STATE LAND - UNDESIGNATED



Location of sample plot within the Snowshoe Creek site. The map shown is a portion of the USGS 7.5' Lower Red Rock Lake quadrangle.

Site Basic Record
UPPER BIG SHEEP CREEK

From Dell, proceed south along the I-15 frontage road following the Big Sheep Creek signs. Continue 1.7miles to a T intersection, and take the fork leading southwest. Proceed 8 miles to a Y intersection and take the road leading south 7.5 miles. The site is north of the road.

The site is a steep, southerly limestone talus slope in various stages of becoming stabilized by vegetation. A portion of the site is unvegetated talus and limestone outcrops. The vegetation is characterized by shrublands (Artemisia tridentata series; A. arbuscula series; and Cercocarpus ledifolius series) and woodlands in the Pinus flexilis series.

COUNTY: Beaverhead

USGS QUADRANGLE: CABOOSE CANYON

TOWNSHIP-RANGE: 015S010W SECTION: 10
QUARTER/ADDITIONAL SECTIONS: N2

BOUNDING RECTANGLE: S: 443238N N: 443305N E: 1124748W W: 1124855W

BOUNDARY JUSTIFICATION: The boundary contains a relatively continuous occurrence of limestone talus, and extends from Big Sheep Creek (and road) to the ridge crest. This includes all upland areas which might support occurrences of rare plant species.

APPROXIMATE ACREAGE: 200.00

GENERAL RATING: 2
Site supports five S1 plant species: Agastache cusickii, Arenaria Kingii, Hutchinsia procumbens, Mimulus suksdorfii, and Phacelia incana.

BIODIVERSITY SIGNIFICANCE: B2
Currently only known occurrence in Montana of Agastache cusickii (G3G4/S1). Site contains a better occurrence of Phacelia incana (G3G4/S1), the only Montana location for Hutchinsia procumbens (G5/S1) and a representative site for Mimulus suksdorfii (G5/S1).

OTHER VALUES: V4

PROTECTION URGENCY: P3
Gravel pit development threatens the lower portions of the site. The steep, rocky slopes minimize the incidence of livestock use; however, some of the Cercocarpus ledifolius present is being heavily browsed by deer.

MANAGEMENT URGENCY: M4
Deer populations may need to be controlled to prevent overbrowsing of Cercocarpus and reduce the possibility of increased erosion.

CONSERVATION INTENT: Recommend establishment of a BLM ACEC

PROTECTION COMMENTS: The BLM is aware of the site and met with L. Roe to evaluate the best location for a public gravel pit. A decision was made after a field evaluation. Signs were to be posted at the designated gravel pit.

LAND USE: Nine different gravel pits were established on the slopes below the populations. One was chosen by the BLM (after a field evaluation) to be designated for use. It is not known if the site selected is currently the only one used. Since the slopes of the site are so steep, rocky, and unstable, use other than by wildlife has been severely limited. Cattle use has been moderate in the Artemisia tridentata/Agropyron spicatum communities on the less steep lower slopes of the site.

NATURAL HAZARDS: Limestone cliffs and loose talus pose hazards.

EXOTICS: Very few exotic species are currently present on the site.

OFF-SITE LAND USES: The riparian area beneath the slope along the creek is in poor condition from extensive use by cattle. Improvement of grazing practices might reduce the numbers and types of exotics likely to invade the riparian area, and hence the

upland site. Dust from the road may impact the growth of the lower slope vegetation.

INFORMATION NEEDS: The extent and exact locations of all of the plant populations need to be mapped.

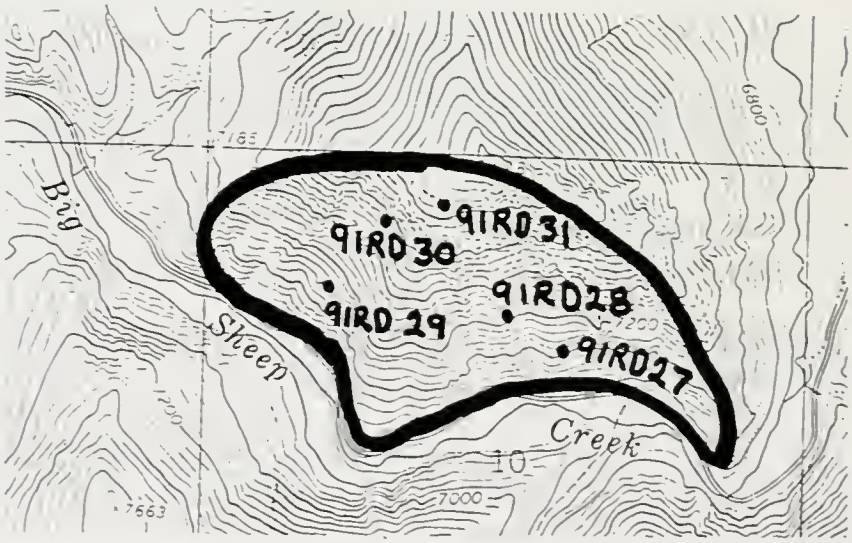
MANAGEMENT NEEDS: Since five rare plant species are present on the site and since the communities present are relatively pristine, the site is worthy of consideration for ACEC designation.

MANAGEMENT COMMENTS:

ELEMENT OCCURRENCE INFORMATION:

NAME:	GRANK:	SRANK:	REF:
PINUS FLEXILIS/AGROPYRON SPICATUM PA	G5	S4	002
CERCOCARPUS LEDIFOLIUS/AGROPYRON SPICATUM PA	G5	S4	003
ARTEMISIA ARBUSCULA/AGROPYRON SPICATUM PA	G4G5	S3S4	001
HUTCHINSIA PROCUMBENS	G5	S1	001
PHACELIA INCANA	G3G4	S1	002
AGASTACHE CUSICKII	G2G3	S1	001
MIMULUS SUKSDORFII	G4?	S1	006

OWNERSHIP/MANAGEMENT: BLM: BUTTE DISTRICT, DILLON RESOURCE AREA
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)



Location of sample plots within the Upper Big Sheep Creek site. The map shown is a portion of the USGS 7.5' Caboose Canyon quadrangle.

Site Basic Record
UPPER RED ROCK LAKE SPRUCE FOREST

From Monida, proceed east on the main Centennial Valley gravel road ca. 32 miles to Upper Lake Campground. Continue past the campground 1.5 miles and park. The site is the prominent spruce stand 0.2 mile due north.

The site contains an old-growth riparian Picea engelmannii forest on the southeast shore of Upper Red Rock Lake. The Picea present appears to be a hybrid between P. engelmannii and P. glauca. The stand is surrounded by a complex of riparian shrub and graminoid communities. The primary disturbance present appears to be windthrow.

COUNTY: Beaverhead

USGS QUADRANGLE: UPPER RED ROCK LAKE

TOWNSHIP-RANGE: 014S001W SECTION: 22
QUARTER/ADDITIONAL SECTIONS: SE4

BOUNDING RECTANGLE: S: 443536N N: 443544N E: 1114155W W: 1114216W

BOUNDARY JUSTIFICATION: The primary boundary encompasses the entire Picea engelmannii cover type and follows the boundary between this type and adjacent shrubland and graminoid communities.

APPROXIMATE ACREAGE: 15.00

GENERAL RATING: 2
Old-growth riparian Picea engelmannii forest is present.

BIODIVERSITY SIGNIFICANCE: B4
High-quality, pristine, old-growth occurrence of Picea engelmannii/Equisetum arvense (G4S3)

OTHER VALUES: V2
This site and the surrounding areas are highly significant riparian/wetland wildlife habitat.

PROTECTION URGENCY: P3
The site is currently protected within the Red Rock Lakes Wilderness. However, maintaining hydrologic integrity is vital to maintaining the vegetation characteristics of the site. Mismanagement of surrounding lands could alter hydrologic characteristics and degrade the site.

MANAGEMENT URGENCY: M4
Ensure that the surrounding watershed remains intact and that cattle are excluded from the site.

CONSERVATION INTENT: Recommend establishment as a Fish and Wildlife Service Research Natural Area.

PROTECTION COMMENTS: Site is currently protected within the FWS Red Rock Lakes Wilderness.

LAND USE: Wildlife tracks bisect the site and wildlife habitat preservation/management maintenance appear to be the primary land uses in effect.

NATURAL HAZARDS: Close encounters with upset moose.

EXOTICS: None observed.

OFF-SITE LAND USES: Logging of nearby upland forests and heavy grazing of nearby grasslands and shrublands could result in hydrologic alterations significant enough to degrade this riparian/wetland site.

INFORMATION NEEDS: A detailed survey of the surrounding riparian shrub and graminoid communities would be desirable.

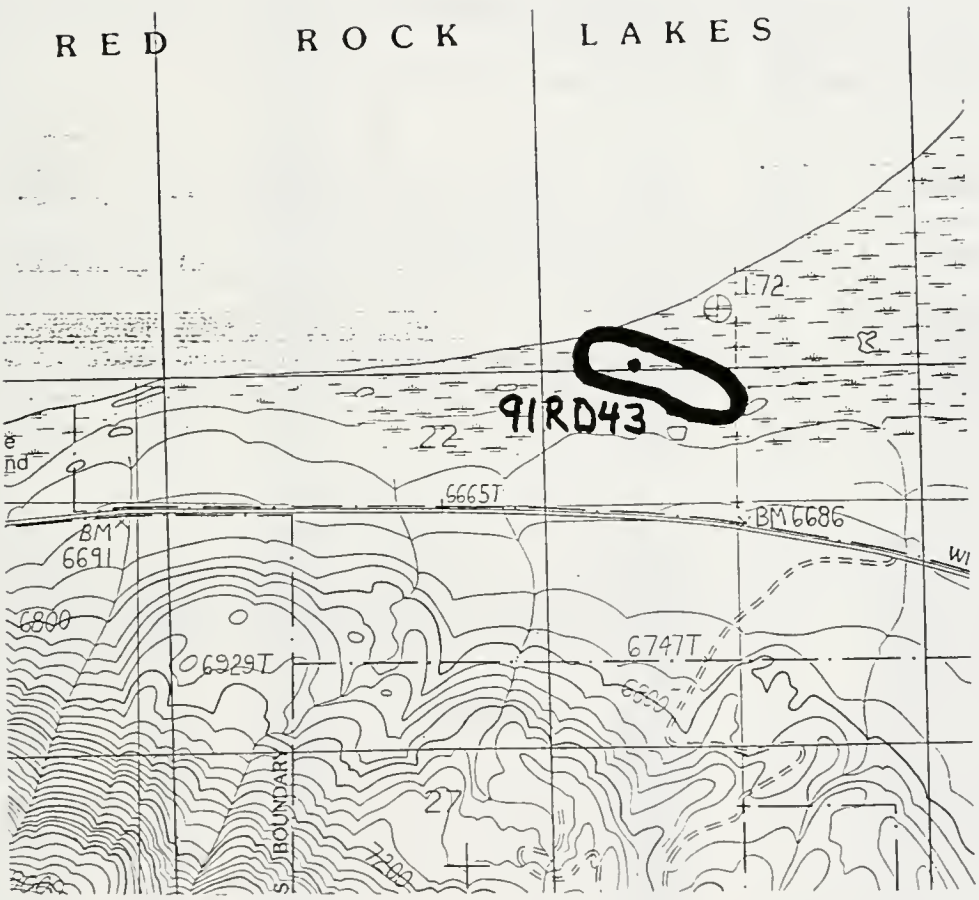
MANAGEMENT NEEDS: Establish a special natural areas designation for the site, focusing on ensuring that the site's natural characteristics are maintained.

MANAGEMENT COMMENTS: The site is fully contained within the Red Rock Lakes Wilderness and Red Rock Lakes National Wildlife Refuge.

ELEMENT OCCURRENCE INFORMATION:

NAME:	GRANK:	SRANK:	REF:
PICEA SP/EQUISETUM ARVENSE PA	G4	S3	002

OWNERSHIP/MANAGEMENT: RED ROCK LAKES WILDERNESS



Location of sample plot within the Upper Red Rock Lake Spruce Forest site. The map shown is a portion of the USGS 7.5' Upper Red Rock Lake quadrangle.

APPENDIX B

PLANT LIST AND IMPORTANCE VALUES OF ALL SPECIES IN SAMPLE PLOTS

The coded nomenclature is primarily based on Hitchcock and Cronquist (1973). Rare species are highlighted.

The importance values (IV) presented equal the species percentage presence (number of plots of occurrence as percentage of all plots) time the species cover index (% cover of species summed over all plots of occurrence).

#OCCUR = number of plots of occurrence

Summary statistics:

Total number of species = 268
Total number of plots = 52
Total number of species occurrences = 1086

SPECIES	CODE	PLOT #'S OF VOUCHERS	#OCCUR	IV
TREES				
ABIES LASIOCARPA	ABILAS		2	6
JUNIPERUS SCOPULORUM	JUNSCO		17	2991
PICEA ENGELMANNII	PICENG	43	2	310
PINUS ALBICAULIS	PINALB		2	154
PINUS FLEXILIS	PINFLE		5	82
POPULUS TRICHOCARPA	POPTRI		2	615
PSEUDOTSUGA MENZIESII	PSEMEN		7	727
SHRUBS				
AMELANCHIER UTAHENSIS	AMEUTA		1	1
ARCTOSTAPHYLOS UVA-URSI	ARCUVA		5	48
ARTEMISIA ARBUSCULA	ARTARB	29	3	346
ARTEMISIA FRIGIDA	ARTFRI		31	5932
ARTEMISIA TRIDENTATA	ARTTRI	2,5,6,7,14,18,21,23,25	26	22875
ARTEMISIA TRIPARTITA	ARTTRP		3	234
ATRIPLEX NUTTALLII	ATRNUT		2	6
BETULA OCCIDENTALIS	BETOCC		1	2
CERCOCARPUS LEDIFOLIUS	CERLED		23	31581
CHRYSOTHAMNUS NAUSEOSUS	CHRNAU		22	1587
CHRYSOTHAMNUS VISCIDIFLORUS	CHRVIS	7,33,34,38	15	938
CORNUS STOLONIFERA	CORSTO		3	12
CORYPHANTHA VIVIPARA	CORVIV		1	1
ERIOGONUM MICROTHECUM	ERIMIC	1,29,45	4	15
EUROTIA LANATA	EURLAN		4	35
GUTIERREZIA SAROTHRAE	GUTSAR		14	525
HAPLOPAPPUS SUFFRUTICOSUS	HAPSUF	42	1	1
JUNIPERUS COMMUNIS	JUNCOM		2	13
LEPTODACTYLON PUNGENS	LEPPUN	35	4	15
LINNAEA BOREALIS	LINBOR		1	38
LONICERA INVOLUCRATA	LONINV	43	1	1
OPUNTIA POLYACANTHA	OPUPOL		23	2212
PRUNUS VIRGINIANA	PRUVIR		1	1
RHAMNUS ALNIFOLIA	RHAALN		1	1
RIBES AUREUM	RIBAUR	47	1	2

SPECIES	CODE	PLOT #'S OF VOUCHERS	#OCCUR	IV
RIBES CEREUM	RIBCER	6	3	9
RIBES INERME	RIBINE	43	1	1
RIBES IRRIGUUM	RIBIRR	28	1	1
RIBES LUCUSTRE	RIBLUC	27,47	3	23
ROSA ACICULARIS	ROSACI		2	346
SALIX BEBBIANA	SALBEB	52	1	1
SALIX EXIGUA	SALEXI		2	415
SALIX LASIANDRA	SALLAS	47	1	2
SALIX RIGIDA	SALRIG	49	1	1
SHEPHERDIA CANADENSIS	SHECAN		1	1
SYMPHORICARPOS ALBUS	SYMALB	47	2	13
SYMPHORICARPOS OREOPHILUS	SYMORE	33,42	3	9
TETRADYMIA CANESCENS	TETCAN	26	9	580
FORBS				
ACHILLEA MILLEFOLIUM	ACHMIL		10	96
ACTAEA RUBRA	ACTRUB		1	38
AGASTACHE CUSICKII	AGACUS	(G3G4/S1 3C)	1	1
AGOSERIS GLAUCA	AGOGLA		4	15
ALLIUM CERNUUM	ALLCER	43	1	1
ALLIUM TEXTILE	ALLTEX		12	196
ANEMONE MULTIFIDA	ANEMUL	41	2	4
ANGELICA ARGUTA	ANGARG	43	1	1
ANGELICA ROSEANA	ANGROS	42	1	1
ANTENNARIA DIMORPHA	ANTDIM	32	5	24
ANTENNARIA MICROPHYLLA	ANTMIC		4	108
ANTENNARIA PARVIFOLIA	ANTPAR		3	9
ANTENNARIA UMBRINELLA	ANTUMB	41	1	1
ARABIS FECUNDA	ARAFEC	16 (G2/S2 C2)	3	12
ARABIS HOLBOELLII	ARAHOL	34,42	22	465
ARABIS NUTTALLII	ARANUT	24	1	1
ARENARIA CONGESTA	ARECON	22,41	5	48
ARENARIA KINGII	AREKIN	29,34 (G4/S1)	3	12
ARENARIA NUTTALLII	ARENUT	27,41	3	9
ARNICA LATIFOLIA	ARNLAT		1	1
ARTEMISIA DRACUNCULUS	ARTDRA		7	54
ARTEMISIA LUDOVICIANA	ARTLUD		4	23
ASTER CAMPESTRIS	ASTCAM	47	1	1
ASTER FALCATUS	ASTFAL	52	1	1
ASTER SCOPULORUM	ASTSCO	22,35	2	4
ASTRAGALUS ADSURGENS	ASTADS	18,44,45,46	4	15
ASTRAGALUS AGRESTIS	ASTAGR	52	1	1
ASTRAGALUS CERAMICUS V. APUS	ASTCER	37 (G4T3/S1 3C)	1	1
ASTRAGALUS FLEXUOSUS	ASTFLE	40	1	1
ASTRAGALUS GILVIFLORUS	ASTGIL	20	2	4
ASTRAGALUS KENTROPHYTA	ASTKEN	41	2	4
ASTRAGALUS PLATYTROPIS	ASTPLA	5,7,20 (G5/S1)	3	9
ASTRAGALUS PURSHII	ASTPUR	5,10,20,25,32	6	35
CAMELINA MICROCARPA	CAMMIC	25	1	1
CARDAMINE BREWERI	CARBRE	43	1	1
CARDAMINE OLIGOSPERMA	CAROLI	51	1	2
CASTILLEJA FLAVA	CASFLA	32,41	4	15
CASTILLEJA LINARIAEFOLIA	CASLIN		1	1
CASTILLEJA MINIATA	CASMIN	42	2	4
CENTAUREA MACULOSA	CENMAC		1	6
CHAENACTIS ALPINA	CHAALP	42	1	1
CHAENACTIS DOUGLASII	CHADOU		7	47
CHENOPODIUM ALBUM	CHEALB		12	138
CIRSIUM ARVENSE	CIRARV	49	4	38
CIRSIUM UNDULATUM	CIRUND		3	9
COMANDRA UMBELLATA	COMUMB		7	54
CREPIS ACUMINATA	CREACU	24	6	35
CREPIS MODOCENSIS	CREMOD		1	1

SPECIES	CODE	PLOT #'S OF VOUCHERS	#OCCUR	IV
CRYPTANTHA FENDLERI	CRYFEN	36 (G4/S1)	2	4
CRYPTANTHA INTERRUPTA	CRYINT	7,16,20,24,29,34	14	188
CYMOPTERUS BIPINNATUS	CYMBIP	7,16,24,32	7	81
DELPHINIUM BICOLOR	DELBIC	20	3	9
DESCURAINIA PINNATA	DESPIN	8,14,26,34	11	116
DESCURAINIA RICHARDSONII	DESRIC	18,23	4	15
DESCURAINIA SOPHIA	DESSOP		1	1
DRABA NEMOROSA	DRANEM	6,24	2	4
DRABA DENSIFOLIA	DRADEN	14 (G5/S2)	1	1
DRABA OLIGOSPERMA	DRAOLI	7,24,26,31,34,42	7	54
EPILOBIUM ALPINUM	EPIALP	43	1	1
ERIGERON CAESPITOSUS	ERICAE	6,9	4	15
ERIGERON COMPOSITUS	ERICOM	22	11	116
ERIGERON OCHROLEUCUS	ERIOCH		1	1
ERIGERON TWEEDYI	ERITWE	26,28,34,41	7	47
ERIOGONUM OVALIFOLIUM V. CELSUM	ERIOVC	35 (G5T4/S2)	5	53
ERIOGONUM OVALIFOLIUM V. MACRO.	ERIOVM	32	1	1
ERIOGONUM UMBELLATUM	ERIUMB	32,33	5	29
ERYSIMUM ASPERUM	ERYASP		4	19
ERYSIMUM INCONSPICUUM	ERYINC		4	15
FRAGARIA VIRGINIANA	FRAVIR		1	19
FRASERA SPECIOSA	FRASPE		2	4
GALIUM BOREALE	GALBOR	43	2	42
GAURA COCCINEA	GAUCOC	20	1	1
GAYOPHYTUM RAMOSISSIMUM	GAYRAM	36	1	1
GERANIUM RICHARDSONII	GERRIC		1	1
GEUM TRIFLORUM	GEUTRI		1	1
GILIA SPICATA	GILSPI	16,46	2	4
GRINDELIA SQUARROSA	GRISQU		1	2
HAPLOPAPPUS ACAULIS	HAPACA	16,32,41	9	736
HAPLOPAPPUS ARMERIOIDES	HAPARM	1,7,9	6	35
HELIANTHUS PETIOLARIS	HELPET		1	1
HEUCHARA PARVIFOLIA	HEUPAR		8	62
HEUCHARA RICHARDSONII	HEURIC		1	1
HYMENOPAPPUS FILIFOLIUS	HYMFIL	7,34	4	15
IRIS MISSOURIENSIS	IRIMIS		1	1
IVESIA GORDONII	IVEGOR	41	1	2
LAPPULA REDOWSKII	LAPRED	8,14,18,23,28	14	188
LEPIDIUM VIRGINICUM	LEPVIR	18,25	3	9
LESQUERELA ALPINA	LESALP	7,11,16,20,45,46	10	96
LESQUERELLA PAYSONII?	LESPAY	26,34,41,42 (G4/S1)	4	15
LEWISIA REDIVIVA	LEWRED		2	4
LINUM PERENNE	LINPER		10	519
LITHOSPERMUM INCISUM	LITINC		6	35
LOMATIUM TRITERNATUM	LOMTRI	32,40	2	4
LUPINUS ARGENTEUS	LUPARG		2	50
LUPINUS LEUCOPHYLLUS	LUPLEU		2	6
LUPINUS SERICEUS	LUPSER	40	1	38
LYGODESMIA JUNCEA	LYGJUN		1	1
MACHAERANTHERA CANESCENS	MACCAN	32,36	4	35
MELILOTUS OFFICINALIS	MELOFF		1	1
MENTHA ARVENSIS	MENARV	49,51	2	15
MENTZELIA ALBICAULIS	MENALB	14,46	3	9
MENTZELIA DECAPETALA	MENDEC	45,46	2	4
MENTZELIA LAEVICAULIS	MENLAE		1	1
MERTENSIA LANCEOLATA	MERLAN		4	15
MERTENSIA OBLONGIFOLIA	MEROBL		2	6
MERTENSIA VIRIDIS	MERVIR		1	1
MIMULIS GUTTATUS	MIMGUT		1	1
MIRABILIS LINEARIS	MIRLIN	44	1	1
OENOTHERA CAESPITOSA	OENCAE		2	4
OROBANCHE FASCICULATA	OROFAS		2	4
OROBANCHE LUDOVICIANA	OROLUD		1	1
OSMORHIZA DEPAUPERATA	OSMDEP	43	1	1

SPECIES	CODE	PLOT #'S OF VOUCHERS	#OCCUR	IV
OXYTROPUS SERICEA	OXYSER	46	5	24
PARNASSIA FIMBRIATA	PARFIM	43	1	1
PEDICULARIS GROENLANDICA	PEDGRO		1	1
PEDICULARIS RACEMOSA	PEDRAC		2	4
PENSTEMON ARIDUS	PENARI	14	15	216
PENSTEMON ATTENUATUS	PENATT	42	1	2
PENSTEMON ERIANTHERUS	PENERI		2	4
PENSTEMOM RADICOSUS	PENRAD	33	1	1
PETROPHYTON CAESPITOSUM	PETCAE		1	1
PHACELIA GLANDULOSA	PHAGLA		1	1
PHACELIA HASTATA	PHAHAS	14	7	121
PHACELIA HETEROPHYLLA	PHAHET		1	1
PHACELIA INCANA	PHAINC	30	1	1
PHACELIA LINEARIS	PHALIN		2	4
PHLOX DIFFUSA	PHLDIF	15	1	1
PHLOX HOODII	PHLHOO	20	6	52
PHLOX LONGIFOLIA	PHLLON	32	6	35
PHLOX MUSCOIDES	PHLMUS	34	9	320
PHLOX PULVINATA	PHLPUL	41	2	6
PHYSARIA GEYERI	PHYGEY	14,20	3	9
PLANTAGO PATAGONICA	PLAPAT		1	1
POLYGONUM RAMOSISSIMUM	POLRAM		3	9
POTENTILLA DIVERSIFOLIA	POTDIV		1	1
POTENTILLA GLANDULOSA	POTGLA	42	1	1
POTENTILLA GRACILIS	POTGRA		1	1
POTENTILLA HIPPIANA	POTHIP	52	1	1
POTENTILLA PENSYLVANICA	POTPEN	9	3	12
PSORALEA TENUIFLORA	PSOTEN	36	2	154
PYROLA SECUNDA	PYRSEC		1	1
SAXIFRAGA BRONCHIALIS	SAXBRO		1	1
SCHOENOCRAMBE LINIFOLIA	SCHLIN	7,13,23,25,31	9	78
SEDUM LANCEOLATUM	SEDLAN	7	6	35
SENECIO CANUS	SENCAN		10	96
SENECIO CRASSULUS	SENCRA	42	1	1
SENECIO DIMORPHOPHYLLUS	SENDIM	41	1	1
SIUM SUAVE	SIUSUA	49	1	1
SMILACINA STELLATA	SMISTE		3	234
SOLIDAGO GIGANTEA	SOLGIG		5	48
SOLIDAGO MULTIRADIATA	SOLMUL	21,41	2	13
SOLIDAGO NANA	SOLNAN	17	1	1
SPHAERALCEA COCCINEA	SPHCOC		7	54
STEPHANOMERIA RUNCINATA	STERUN	27,45	3	9
TARAXACUM LAEVIGATUM	TARLAE		1	1
TARAXACUM OFFICINALE	TAROFF		19	347
THALICTRUM OCCIDENTALE	THAOCC		1	6
THERMOPSIS MONTANA	THEMON		1	2
TOWNSENDIA HOOKERI	TOWHOO		3	9
TOWNSENDIA MONTANA	TOWMON	41	2	4
TRAGOPOGON DUBIUS	TRADUB		4	15
TRAGOPOGON PRATENSIS	TRAPRA		1	1
TRIFOLIUM LONGIPES	TRILON	52	1	2
TRIFOLIUM REPENS	TRIREP		1	1
VALERIANA EDULIS	VALEDU	41	1	1
VERBASCUM THAPSUS	VERTHA		1	1
VERONICA AMERICANA	VERAME	43	1	1
VICIA AMERICANA	VICAME	51	1	1
VIOLA ADUNCA	VIOADU	50	1	1
VIOLA ORBICULATA	VIOORB	43	1	6
ZIGADENUS ELEGANS	ZIGELE		1	1
ZIGADENUS VENENOSUS	ZIGVEN		3	9

SPECIES	CODE	PLOT #'S OF VOUCHERS	#OCCUR	IV
GRAMINOIDS				
AGROPYRON DASYSTACHYUM	AGRDAS		8	815
AGROPYRON SMITHII	AGRSMI	52	1	115
AGROPYRON SPICATUM	AGRSPI		36	41192
AGROSTIS ALBA	AGRALB	48	1	2
ARISTIDA LONGISETA	ARILON		8	469
BOUTELOUA GRACILIS	BOUGRA		12	1696
BROMUS INERMIS	BROINE	47	3	78
BROMUS TECTORUM	BROTEC		3	234
CALAMAGROSTIS CANADENSIS	CALCAN	43	1	19
CALAMAGROSTIS PURPURASCENS	CALPUR	42	1	38
CAREX ATHROSTACHYA	CARATH	48	1	1
CAREX DISPERMA	CARDIS	43	1	2
CAREX FILIFOLIA	CARFIL	7	3	14
CAREX PENSYLVANICA	CARPEN	16,39	2	6
CAREX PRAEGRACILIS	CARPRA	48,50	2	40
CAREX ROSSII	CARROS		12	715
CAREX ROSTRATA	CARRST	43,47,48	3	23
CAREX STENOPHYLLA	CARSTE		6	179
CAREX VESICARIA	CARVES	51	1	1
DESCHAMPSIA CESPITOSA	DESCES	49	1	1
ELEOCHARIS PALUSTRIS	ELEPAL	49	1	1
ELYMUS CINEREUS	ELYCIN		2	379
FESTUCA IDAHOENSIS	FESIDA		9	3998
GLYCERIA STRIATA	GLYSTR	43	1	1
HESPEROCHLOA KINGII	HESKIN	27	1	6
HORDEUM BRACHYANTHERUM	HORBRA	52	1	1
JUNCUS BALTICUS	JUNBAL		2	42
KOELERIA CRISTATA	KOECRI		15	1889
MUHLENBERGIA CUSPIDATA	MUHCUS	50,52	2	42
ORYZOPSIS HYMENOIDES	ORYHYM		24	3900
PHALARIS ARUNDINACEA	PHAARU	51	3	577
PHLEUM PRATENSE	PHLPRA		1	6
POA ALPINA	POAALP	41	1	1
POA GRACILLIMA	POAGRA	42	1	1
POA INTERIOR	POAINT	42	1	1
POA JUNCIFOLIA	POAJUN	6	1	1
POA PALUSTRIS	POAPAL	47	4	562
POA PRATENSIS	POAPRA		4	615
POA SANDBERGII	POASAN	7,42	31	4412
SITANION HYSTRIX	SITHYS	42	2	4
STIPA COMATA	STICOM	13	22	12481
STIPA VIRIDULA	STIVIR		1	1
TRISETUM SPICATUM	TRISPI	41	1	1
FERNS/ALLIES				
CHEILANTHES FEEI	CHEFEE	13	2	4
CYSTOPTERIS FRAGILIS	CYSFRA	33	1	1
EQUISETUM ARVENSE	EQUARV		1	96
EQUISETUM HYEMALE	EQUHYE	52	1	58
EQUISETUM LAEVIGATUM	EQULAE		1	1
SELAGINELLA DENSA	SELDEN		8	485
WOODSIA OREGANA	WOOORE	13	2	4
WOODSIA SCOPULINA	WOOSCO	6	3	9

APPENDIX C

COMPREHENSIVE LIST OF SOUTHWESTERN MONTANA PLANT COMMUNITIES

Types that are uncommon in Montana are highlighted.

The G and S rankings given for each community type are estimates of the global and state rarity, respectively, for that type. These rankings have been determined by MTNHP staff in coordination with The Nature Conservancy and professional ecologists in Montana. The rankings are defined as follows:

G1 and S1 = 1 to 5 known occurrences
G2 and S2 = 6 to 20 known occurrences
G3 and S3 = 21 to 100 known occurrences
G4 and S4 = > 100 known occurrences
G5 and S5 = essentially ineradicable

= add type write-up

TYPE NAME	RANK G	RANK S
ABIES LASIOCARPA/ALNUS SINUATA	G4	S4
ABIES LASIOCARPA/ARNICA CORDIFOLIA	G5	S5
ABIES LASIOCARPA/CALAMAGROSTIS CANADENSIS	G5	S5
ABIES LASIOCARPA/CALAMAGROSTIS RUBESCENS	G5	S4
ABIES LASIOCARPA/CAREX GEYERI	G4	S4
ABIES LASIOCARPA/CLEMATIS PSEUDOALPINA	G4	S3
ABIES LASIOCARPA/GALIUM TRIFLORUM	G4	S4
ABIES LASIOCARPA/LEDUM GLANDULOSUM	G4	S4
ABIES LASIOCARPA/LINNAEA BOREALIS	G5	S5
ABIES LASIOCARPA/LUZULA HITCHCOCKII	G5	S5
ABIES LASIOCARPA/MENZIESIA FERRUGINEA	G5	S5
ABIES LASIOCARPA-PINUS ALBICAULIS/VACCINIUM SCOPARIUM	G5	S5
ABIES LASIOCARPA/RIBES MONTIGENUM	G5	S4
ABIES LASIOCARPA/VACCINIUM CESPITOSUM	G5	S5
ABIES LASIOCARPA/VACCINIUM GLOBULARE	G5	S4
ABIES LASIOCARPA/VACCINIUM SCOPARIUM	G5	S5
ABIES LASIOCARPA/XEROPHYLLUM TENAX	G5	S5
AGROPYRON DASYSTACHYUM/PHACELIA HASTATA	G2?	S2?
AGROPYRON SMITHII	G4	S3
AGROPYRON SPICATUM/AGROPYRON SMITHII	G5	S4
AGROPYRON SPICATUM/BOUTELOUA GRACILIS	G5	S4
AGROPYRON SPICATUM/ORYZOPSIS HYMENOIDES	G3?	S2?
AGROPYRON SPICATUM/POA SANDBERGII	G4	S4
ALNUS INCANA	G4	S3

TYPE NAME	RANK G	RANK S
ARTEMISIA ARBUSCULA/AGROPYRON SPICATUM	G4G5	S3S4
ARTEMISIA ARBUSCULA/FESTUCA IDAHOENSIS	G5	S3S4
ARTEMISIA CANA/FESTUCA IDAHOENSIS	G4	S4
ARTEMISIA PEDATIFIDA/FESTUCA IDAHOENSIS	G2	S2
ARTEMISIA TRIDENTATA/AGROPYRON SPICATUM	G5	S5
ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS	G5	S4
ARTEMISIA TRIDENTATA/FESTUCA SCABRELLA	G4	S4
ARTEMISIA TRIPARTITA/FESTUCA IDAHOENSIS	G5	S3
ATRIPLEX NUTTALLII/ORYZOPSIS HYMENOIDES	G3G4	S2?
BETULA GLANDULOSA/CAREX ROSTRATA	G3?	S3?
BETULA OCCIDENTALIS	G4	S3
CALAMAGROSTIS CANADENSIS	G4	S4
CAREX AQUATILIS	G5	S4
CAREX LASIOCARPA	G5	S4
CAREX LIMOSA	G3	S3
CAREX NEBRASKENSIS	G4	S3
CAREX ROSTRATA	G5	S5
CAREX SCOPULORUM	G4	S4
CAREX SIMULATA	G3	S3
CERCOCARPUS LEDIFOLIUS/AGROPYRON SPICATUM	G5	S4
CERCOCARPUS LEDIFOLIUS/FESTUCA IDAHOENSIS	G2?	S2?
DESCHAMPSIA CESPITOSA	G4	S4
DESCHAMPSIA CESPITOSA/CAREX SPP	G4G5	S4
DISTICHLIS SPICATA	G4	S3
ELEOCHARIS PALUSTRIS	G4?	S4
ELEOCHARIS PAUCIFLORA	G4	S4
ELYMUS CINEREUS	G4	S2?
ELYMUS CINEREUS/AGROPYRON SMITHII	G4	S3
ELYMUS CINEREUS/FESTUCA IDAHOENSIS	G4	S3
EQUISETUM FLUVIATILE	G4	S4

TYPE NAME	RANK G	RANK S
FESTUCA IDAHOENSIS/AGROPYRON CANINUM	G4	S4
FESTUCA IDAHOENSIS/AGROPYRON SMITHII	G4	S4
FESTUCA IDAHOENSIS/AGROPYRON SPICATUM	G4	S4
FESTUCA IDAHOENSIS/CAREX FILIFOLIA	G3?	S3
FESTUCA IDAHOENSIS/CAREX SCIRPOIDEA	G2	S2
FESTUCA IDAHOENSIS/DESCHAMPSIA CESPITOSA	G3G4	S3
FESTUCA IDAHOENSIS/LEUCOPOA KINGII	G2G3	S2
FESTUCA IDAHOENSIS/STIPA RICHARDSONII	G4	S3
FESTUCA SCABRELLA/AGROPYRON SPICATUM	G4	S4
FESTUCA SCABRELLA/FESTUCA IDAHOENSIS	G4G5	S4
GLYCERIA BOREALIS	G3	S3
JUNCUS BALTICUS	G5G4	S4
JUNIPERUS SCOPULORUM	G4	S3
JUNIPERUS SCOPULORUM/ARTEMISIA TRIDENTATA	G2?	S2?
JUNIPERUS SCOPULORUM/CERCOCARPUS LEDIFOLIUS	G3	S3
KALMIA MICROPHYLLA/CAREX SCOPULORUM	G3	S3
PHALARIS ARUNDINACEA	G4	S4
PICEA SP/CALAMAGROSTIS CANADENSIS	G3	S3
PICEA SP/EQUISETUM ARVENSE	G4	S3
PICEA SP/GALIUM TRIFLORUM	G5	S4S5
PICEA SP/LINNAEA BOREALIS	G4	S4
PICEA SP/PHYSOCARPUS MALVACEUS	G4	S3
PICEA SP/SENECIO STREPTANTHIFOLIUS	G4	S4
PICEA SP/SMILACINA STELLATA	G4	S4
PINUS ALBICAULIS	G4G5	S4S5
PINUS ALBICAULIS-ABIES LASIOCARPA	G5	S5
PINUS ALBICAULIS/CAREX GEYERI	G4	S4
PINUS CONTORTA/CALAMAGROSTIS RUBESCENS	G5	S5
PINUS CONTORTA/LINNAEA BOREALIS	G5	S5
PINUS CONTORTA/PURSHIA TRIDENTATA	G3	S3
PINUS CONTORTA/VACCINIUM CESPITOSUM	G5	S5
PINUS CONTORTA/VACCINIUM SCOPARIUM	G5	S5
PINUS FLEXILIS/AGROPYRON SPICATUM	G5	S4
PINUS FLEXILIS/CERCOCARPUS LEDIFOLIUS	G3?	S3?
PINUS FLEXILIS/FESTUCA IDAHOENSIS	G5	S4
PINUS FLEXILIS/JUNIPERUS COMMUNIS	G5	S4

TYPE NAME	RANK G	RANK S
POA PALUSTRIS	G4	S4
POA PRATENSIS	G5	S5
POPULUS ANGUSTIFOLIA/CORNUS STOLONIFERA	G4	S3
POPULUS ANGUSTIFOLIA/POA PRATENSIS	G4G5	S4?
POPULUS TREMULOIDES/CALAMAGROSTIS RUBESCENS	G5	S4
POPULUS TREMULOIDES/CORNUS STOLONIFERA	G3	S3
POPULUS TRICHOCARPA/CORNUS STOLONIFERA	G4	S4
POPULUS TRICHOCARPA/POA PRATENSIS	G4G5	S4?
POTENTILLA FRUTICOSA/DESCHAMPSIA CESPITOSA	G4	S4
POTENTILLA FRUTICOSA/FESTUCA IDAHOENSIS	G4	S3
POTENTILLA FRUTICOSA/FESTUCA SCABRELLA	G4	S4
PSEUDOTSUGA MENZIESII/AGROPYRON SPICATUM	G4G5	S4
PSEUDOTSUGA MENZIESII/ARCTOSTAPHYLOS UVA-URSI	G4	S4
PSEUDOTSUGA MENZIESII/ARNICA CORDIFOLIA	G5	S4
PSEUDOTSUGA MENZIESII/CALAMAGROSTIS RUBESCENS	G5	S5
PSEUDOTSUGA MENZIESII/CAREX GEYERI	G5	S4
PSEUDOTSUGA MENZIESII/CERCOCARPUS LEDIFOLIUS	G3?	S3?
PSEUDOTSUGA MENZIESII/CORNUS STOLONIFERA	G3	S2
PSEUDOTSUGA MENZIESII/FESTUCA IDAHOENSIS	G5	S4
PSEUDOTSUGA MENZIESII/FESTUCA SCABRELLA	G4	S4
PSEUDOTSUGA MENZIESII/JUNIPERUS COMMUNIS	G5	S4
PSEUDOTSUGA MENZIESII/LINNAEA BOREALIS	G4	S4
PSEUDOTSUGA MENZIESII/PHYSOCARPUS MALVACEUS	G5	S5
PSEUDOTSUGA MENZIESII/SPIRAEA BETULIFOLIA	G5	S4
PSEUDOTSUGA MENZIESII/SYMPHORICARPOS ALBUS	G5	S5
PSEUDOTSUGA MENZIESII/SYMPHORICARPOS OREOPHILUS	G5	S3
PSEUDOTSUGA MENZIESII/VACCINIUM CESPITOSUM	G5	S5
PSEUDOTSUGA MENZIESII/VACCINIUM GLOBULARE	G5	S5
PURSHIA TRIDENTATA/AGROPYRON SPICATUM	G4	S3
PURSHIA TRIDENTATA/FESTUCA IDAHOENSIS	G4G5	S3
PURSHIA TRIDENTATA/FESTUCA SCABRELLA	G4	S3
RHUS AROMATICA/AGROPYRON SPICATUM	G4	S4
RHUS AROMATICA/FESTUCA IDAHOENSIS	G3	S3
SALIX BEBBIANA	G4	S3
SALIX CANDIDA/CAREX ROSTRATA	G2	S2
SALIX DRUMMONDIANA	G3	S3
SALIX EXIGUA	G5	S4

TYPE NAME	RANK G	RANK S
SALIX GEYERIANA/CALAMAGROSTIS CANADENSIS	G5	S4
SALIX GEYERIANA/CAREX ROSTRATA	G5	S5
SALIX GEYERIANA/DESCHAMPSIA CESPITOSA	G4	S3
SALIX GEYERIANA/POA PRATENSIS	G5	S4
SALIX LASIANDRA	G3	S2
SALIX LUTEA/CALAMAGROSTIS CANADENSIS	G3	S3
SALIX PLANIFOLIA/CAREX AQUATILIS	G4	S3
SALIX WOLFII/CAREX AQUATILIS	G4	S3
SALIX WOLFII/DESCHAMPSIA CESPITOSA	G4	S3
SARCOBATUS VERMICULATUS/AGROPYRON SMITHII	G4	S4
SCIRPUS ACUTUS	G5	S4
STIPA COMATA/BOUTELOUA GRACILIS	G5	S5
TYPHA LATIFOLIA	G5	S5

Total Number of Community Types = 140

APPENDIX D

AVERAGE COVER AND CONSTANCY FOR SPECIES IN SAMPLED TYPES

Occurrences of each species in each community type are indicated by two values. The first value indicates the mean cover (in percent) for plots in which the species was present. The second value is the percentage of the total number of plots (in the community type) in which the species was found.

In these tables, type number codes are defined as follows:

TYPE NO. 1 = PINUS ALBICAULIS-ABIES LASIOCARPA
TYPE NO. 2 = PINUS FLEXILIS/AGROPYRON SPICATUM
TYPE NO. 3 = PINUS FLEXILIS/CERCOCARPUS LEDIFOLIUS
TYPE NO. 4 = PSEUDOTSUGA MENZIESII/CERCOCARPUS LEDIFOLIUS
TYPE NO. 5 = JUNIPERUS SCOPULORUM/ARTEMISIA TRIDENTATA
TYPE NO. 6 = JUNIPERUS SCOPULORUM/CERCOCARPUS LEDIFOLIUS
TYPE NO. 7 = ARTEMISIA ARBUSCULA/AGROPYRON SPICATUM
TYPE NO. 8 = ARTEMISIA TRIDENTATA/AGROPYRON SPICATUM
TYPE NO. 9 = ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS
TYPE NO. 10 = ARTEMISIA TRIPARTITA/FESTUCA IDAHOENSIS
TYPE NO. 11 = ATRIPLEX NUTTALLII/ORYZOPSIS HYMENOIDES
TYPE NO. 12 = CERCOCARPUS LEDIFOLIUS/AGROPYRON SPICATUM
TYPE NO. 13 = CERCOCARPUS LEDIFOLIUS/FESTUCA IDAHOENSIS
TYPE NO. 14 = AGROPYRON DASYSTACHYUM/PHACELIA HASTATA
TYPE NO. 15 = AGROPYRON SPICATUM/ORYZOPSIS HYMENOIDES
TYPE NO. 16 = PICEA/EQUISETUM ARVENSE
TYPE NO. 17 = POPULUS TRICHOCARPA/CORNUS STOLONIFERA
TYPE NO. 18 = SALIX EXIGUA
TYPE NO. 19 = AGROPYRON SMITHII
TYPE NO. 20 = ELYMUS CINEREUS
TYPE NO. 21 = PHYLARIS ARUNDINACEA

SPECIES	TYPE NO:	1 (N = 2)		2 (N = 1)		3 (N = 4)		4 (N = 4)		5 (N = 2)		6 (N = 8)		7 (N = 1)	
		COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON
TREES															
ABIES LASIOCARPA		<1	100												
JUNIPERUS SCOPULORUM						2	100	10	25	7	100	7	100		
PICEA ENGELMANNII		<1	50												
PINUS ALBICAULIS		20	100												
PINUS FLEXILIS				3	100	1	100								
POPULUS TRICHOCARPA															
PSEUDOTSUGA MENZIESII		10	50			<1	25	11	100						
SHRUBS															
AMELANCHIER UTAHENSIS												<1	13		
ARCTOSTAPHYLOS UVA-URSI		<1	50			1	100								
ARTEMISIA ARBUSCULA				10	100									40	100
ARTEMISIA FRIGIDA				10	100	<1	50	1	75	2	100	3	100	10	100
ARTEMISIA TRIDENTATA				1	100			7	75	15	100	10	50		
ARTEMISIA TRIPARTITA						<1	25								
ATRIPLEX NUTTALLII												<1	13		
BETULA OCCIDENTALIS															
CERCOCARPUS LEDIFOLIUS				<1	100	28	100	50	100	3	50	34	100		
CHRYSOTHAMNUS NAUSEOSUS				<1	100	3	50	<1	50	1	50			3	100
CHRYSOTHAMNUS VISCIDIFLORUS						<1	25	<1	25	<1	50	<1	25	<1	100
CORNUS STOLONIFERA															
CORYPHANTHA VIVIPARA															
ERIOGONUM MICROTHECUM														<1	100
EUROTIA LANATA										<1	50	2	25		
GUTIERREZIA SAROTHRAE										<1	50	2	63		
HAPLOPAPPUS SUFFRUTICOSUS		<1	50												
JUNIPERUS COMMUNIS		2	100												
LEPTODACTYLON PUNGENS															
LINNAEA BOREALIS															
LONICERA INVOLUCRATA															
OPUNTIA POLYACANTHA								1	25	7	100	2	88		
PRUNUS VIRGINIANA															
RHAMNUS ALNIFOLIA															
RIBES AUREUM															
RIBES CEREUM								<1	25			<1	13		
RIBES INERME															
RIBES IRRIGUUM															
RIBES LUCUSTRE				<1	100										
ROSA ACICULARIS															
SALIX BEBBIANA															
SALIX EXIGUA															
SALIX LASIANDRA															
SALIX RIGIDA															
SHEPHERDIA CANADENSIS		<1	50												
SYMPHORICARPOS ALBUS															
SYMPHORICARPOS OREOPHILUS		<1	50			<1	25								
TETRADYMIA CANESCENS						2	50								
FORBS															
ACHILLEA MILLEFOLIUM		<1	100			<1	50					<1	13		
ACTAEA RUBRA															
AGASTACHE CUSICKII				<1	100										
AGOSERIS GLAUCA															
ALLIUM CERNUUM															
ALLIUM TEXTILE						<1	50					1	63		
ANEMONE MULTIFIDA		<1	100												
ANGELICA ARGUTA															
ANGELICA ROSEANA		<1	50												

SPECIES	TYPE NO:	1		2		3		4		5		6		7	
		COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON
ANTENNARIA DIMORPHA		<1	50												
ANTENNARIA MICROPHYLLA															
ANTENNARIA PARVIFOLIA								<1	25			<1	13		
ANTENNARIA UMBRINELLA		<1	50												
ARABIS FECUNDA						<1	50					1	13		
ARABIS HOLBOELLII		<1	100	<1	100	<1	50	<1	75			<1	13		
ARABIS NUTTALLII												<1	13		
ARENARIA CONGESTA		<1	100			<1	25								
ARENARIA KINGII						<1	25							1	100
ARENARIA NUTTALLII		<1	100	<1	100										
ARNICA LATIFOLIA		<1	50												
ARTEMISIA DRACUNCULUS															
ARTEMISIA LUDOVICIANA															
ASTER CAMPESTRIS															
ASTER FALCATUS															
ASTER SCOPULORUM															
ASTRAGALUS ADSURGENS										<1	50				
ASTRAGALUS AGRESTIS															
ASTRAGALUS CERAMICUS V. APUS															
ASTRAGALUS FLEXUOSUS															
ASTRAGALUS GILVIFLORUS												<1	13		
ASTRAGALUS KENTROPHYTA		<1	100												
ASTRAGALUS PLATYTROPIS												<1	25		
ASTRAGALUS PURSHII												<1	13		
CAMELINA MICROCARPA															
CARDAMINE BREWERI															
CARDAMINE OLIGOSPERMA															
CASTILLEJA FLAVA		<1	50			<1	25								
CASTILLEJA LINARIAEFOLIA															
CASTILLEJA MINIATA		<1	100												
CENTAUREA MACULOSA															
CHAENACTIS ALPINA		<1	50												
CHAENACTIS DOUGLASII						<1	25	<1	25			<1	13		
CHENOPODIUM ALBUM								<1	100	<1	50	<1	63		
CIRSIUM ARVENSE															
CIRSIUM UNDULATUM															
COMANDRA UMBELLATA						<1	25					<1	13		
CREPIS ACUMINATA						<1	50					<1	13		
CREPIS MODOCENSIS															
CRYPTANTHA FENDLERI															
CRYPTANTHA INTERRUPTA				<1	100	<1	75			<1	50	<1	63	<1	100
CYMOPTERUS BIPINNATUS						<1	75					1	38		
DELPHINIUM BICOLOR												<1	25		
DESCURAINIA PINNATA						<1	50	<1	50			<1	50		
DESCURAINIA RICHARDSONII								<1	25			<1	13		
DESCURAINIA SOPHIA															
DRABA NEMOROSA												<1	25		
DRABA DENSIFOLIA								<1	25						
DRABA OLIGOSPERMA		<1	50			<1	50					<1	25		
EPILOBIUM ALPINUM															
ERIGERON CAESPITOSUS				<1	100							<1	13		
ERIGERON COMPOSITUS		<1	100					<1	25	<1	50	<1	50		
ERIGERON OCHROLEUCUS										<1	50				
ERIGERON TWEEDYI		<1	100			<1	50							<1	100
ERIOGONUM OVALIFOLIUM V. CELSUM															
ERIOGONUM OVALIFOLIUM V. MACRO.															
ERIOGONUM UMBELLATUM															
ERYSIMUM ASPERUM						<1	25					1	13		
ERYSIMUM INCONSPICUUM														<1	100
FRAGARIA VIRGINIANA															
FRASERA SPECIOSA		<1	100												
GALIUM BOREALE															
GAURA COCCINEA												<1	13		

SPECIES	TYPE NO:	1		2		3		4		5		6		7	
		COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON
GAYOPHYTUM RAMOSISSIMUM															
GERANIUM RICHARDSONII															
GEUM TRIFLORUM						<1	25								
GILIA SPICATA						<1	25								
GRINDELIA SQUARROSA															
HAPLOPAPPUS ACAULIS		2	100			4	100					3	13		
HAPLOPAPPUS ARMERIOIDES												<1	25		
HELIANTHUS PETIOLARIS										<1	50				
HEUCHARA PARVIFOLIA								<1	75			<1	25		
HEUCHARA RICHARDSONII								<1	25						
HYMENOPAPPUS FILIFOLIUS						<1	25			<1	50	<1	13		
IRIS MISSOURIENSIS						<1	25								
IVESIA GORDONII		1	50												
LAPPULA REDOWSKII								<1	75			<1	50		
LEPIDIUM VIRGINICUM															
LESQUERELA ALPINA						<1	25					<1	63		
LESQUERELLA PAYSONII?		<1	100			<1	50								
LEWISIA REDIVIVA						<1	25								
LINUM PERENNE		<1	50			1	75					<1	13	<1	100
LITHOSPERMUM INCISUM						<1	75			<1	50	<1	25		
LOMATIUM TRITERNATUM															
LUPINUS ARGENTEUS															
LUPINUS LEUCOPHYLLUS															
LUPINUS SERICEUS															
LYGODESMIA JUNCEA										<1	50				
MACHAERANTHERA CANESCENS															
MELILOTUS OFFICINALIS															
MENTHA ARVENSIS															
MENTZELIA ALBICAULIS								<1	50						
MENTZELIA DECAPETALA															
MENTZELIA LAEVICAULIS															
MERTENSIA LANCEOLATA						<1	25	<1	25			<1	13		
MERTENSIA OBLONGIFOLIA															
MERTENSIA VIRIDIS															
MIMULIS GUTTATUS															
MIRABILIS LINEARIS										<1	50				
OENOTHERA CAESPITOSA				<1	100									<1	100
OROBANCHE FASCICULATA				<1	100										
OROBANCHE LUDOVICIANA										<1	50				
OSMORHIZA DEPAUPERATA															
OXYTROPUS SERICEA															
PARNASSIA FIMBRIATA															
PEDICULARIS GROENLANDICA															
PEDICULARIS RACEMOSA		<1	100												
PENSTEMON ARIDUS				<1	100	<1	75	<1	50			<1	13	<1	100
PENSTEMON ATTENUATUS		1	50												
PENSTEMON ERIANTHERUS						<1	25								
PENSTEMOM RADICOSUS															
PETROPHYTON CAESPITOSUM															
PHACELIA GLANDULOSA															
PHACELIA HASTATA								<1	50						
PHACELIA HETEROPHYLLA															
PHACELIA INCANA															
PHACELIA LINEARIS															
PHLOX DIFFUSA								<1	25						
PHLOX HOODII												<1	13		
PHLOX LONGIFOLIA															
PHLOX MUSCOIDES						2	50					<1	50		
PHLOX PULVINATA		<1	100												
PHYSARIA GEYERI								<1	50			<1	13		
PLANTAGO PATAGONICA															
POLYGONUM RAMOSISSIMUM															
POTENTILLA DIVERSIFOLIA		<1	50												

SPECIES	TYPE NO:	1		2		3		4		5		6		7	
		COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON
POTENTILLA GLANDULOSA		<1	50												
POTENTILLA GRACILIS															
POTENTILLA HIPPIANA															
POTENTILLA PENSYLVANICA												<1	13		
PSORALEA TENUIFLORA															
PYROLA SECUNDA															
SAXIFRAGA BRONCHIALIS		<1	50												
SCHOENOCRAMBE LINIFOLIA												<1	63		
SEDUM LANCEOLATUM		<1	100									<1	13		
SENECIO CANUS		<1	50	<1	100	<1	100	<1	25			<1	13	<1	100
SENECIO CRASSULUS		<1	50												
SENECIO DIMORPHOPHYLLUS		<1	50												
SIUM SUAVE															
SMILACINA STELLATA															
SOLIDAGO GIGANTEA															
SOLIDAGO MULTIRADIATA		3	50					<1	25						
SOLIDAGO NANA						<1	25								
SPHAERALCEA COCCINEA										<1	50	<1	38		
STEPHANOMERIA RUNCINATA				<1	100									<1	100
TARAXACUM LAEVIGATUM												<1	13		
TARAXACUM OFFICINALE						<1	75					<1	38	<1	100
THALICTRUM OCCIDENTALE															
THERMOPSIS MONTANA															
TOWNSENDIA HOOKERI										<1	50	<1	13		
TOWNSENDIA MONTANA		<1	100												
TRAGOPOGON DUBIUS															
TRAGOPOGON PRATENSIS															
TRIFOLIUM LONGIPES															
TRIFOLIUM REPENS															
VALERIANA EDULIS		<1	50												
VERBASCUM THAPSUS															
VERONICA AMERICANA															
VICIA AMERICANA															
VIOLA ADUNCA															
VIOLA ORBICULATA															
ZIGADENUS ELEGANS		<1	50												
ZIGADENUS VENENOSUS		<1	50									<1	13		
GRAMINOIDS															
AGROPYRON DASYSTACHYUM															
AGROPYRON SMITHII															
AGROPYRON SPICATUM				20	100	8	100	5	100	25	100	14	100	40	100
AGROSTIS ALBA															
ARISTIDA LONGISETA										5	100	4	50		
BOUTELOUA GRACILIS										7	100	5	38		
BROMUS INERMIS															
BROMUS TECTORUM															
CALAMAGROSTIS CANADENSIS															
CALAMAGROSTIS PURPURASCENS		20	50												
CAREX ATHROSTACHYA															
CAREX DISPERMA															
CAREX FILIFOLIA												<1	38		
CAREX PENSYLVANICA						1	25								
CAREX PRAEGRACILIS															
CAREX ROSSII		<1	100			6	100	<1	25			1	13		
CAREX ROSTRATA															
CAREX STENOPHYLLA										1	50				
CAREX VESICARIA															
DESCHAMPSIA CESPITOSA															
ELEOCHARIS PALUSTRIS															
ELYMUS CINEREUS															
FESTUCA IDAHOENSIS															

SPECIES	TYPE NO:	1		2		3		4		5		6		7	
		COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON
GLYCERIA STRIATA															
HESPEROCHLOA KINGII				3	100										
HORDEUM BRACHYANTHERUM															
JUNCUS BALTICUS															
KOELERIA CRISTATA												5	25		
MUHLENBERGIA CUSPIDATA															
ORYZOPSIS HYMENOIDES						1	100			7	100	3	100		
PHALARIS ARUNDINACEA															
PHLEUM PRATENSE															
POA ALPINA		<1	50												
POA GRACILLIMA		<1	50												
POA INTERIOR		<1	50												
POA JUNCIFOLIA												<1	13		
POA PALUSTRIS															
POA PRATENSIS															
POA SANDBERGII		<1	50			1	25	<1	100	1	50	<1	75		
SITANION HYSTRIX		<1	50												
STIPA COMATA						1	25			25	100	4	63		
STIPA VIRIDULA															
TRISETUM SPICATUM		<1	50												
FERNS/ALLIES															
CHEILANTHES FEEI												<1	25		
CYSTOPTERIS FRAGILIS															
EQUISETUM ARVENSE															
EQUISETUM HYEMALE															
EQUISETUM LAEVIGATUM															
SELAGINELLA DENSA								<1	25			2	50		
WOODSIA OREGANA												<1	25		
WOODSIA SCOPULINA								<1	25			<1	13		

SPECIES	TYPE NO:	8 (N = 7)		9 (N = 4)		10 (N = 2)		11 (N = 1)		12 (N = 3)		13 (N = 1)		14 (N = 3)	
		COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON
TREES															
ABIES LASIOCARPA															
JUNIPERUS SCOPULORUM															
PICEA ENGELMANNII															
PINUS ALBICAULIS															
PINUS FLEXILIS															
POPULUS TRICHOCARPA															
PSEUDOTSUGA MENZIESII				<1	25										
SHRUBS															
AMELANCHIER UTAHENSIS															
ARCTOSTAPHYLOS UVA-URSI															
ARTEMISIA ARBUSCULA										10	33				
ARTEMISIA FRIGIDA	5	100	<1	25	2	100	<1	100			3	100	<1	33	
ARTEMISIA TRIDENTATA	30	100	35	100					<1	67	3	100	10	33	
ARTEMISIA TRIPARTITA					20	100									
ATRIPLEX NUTTALLII							1	100							
BETULA OCCIDENTALIS															
CERCOCARPUS LEDIFOLIUS	<1	14							37	100	20	100			
CHRYSOTHAMNUS NAUSEOSUS	<1	57	3	50	1	50	3	100	<1	67			4	100	
CHRYSOTHAMNUS VISCIDIFLORUS	<1	14	<1	50	11	100			3	33	<1	100	2	67	
CORNUS STOLONIFERA															
CORYPHANTHA VIVIPARA	<1	14													
ERIOGONUM MICROTHECUM							<1	100							
EUROTIA LANATA	<1	14													
GUTIERREZIA SAROTHRAE	1	86													
HAPLOPAPPUS SUFFRUTICOSUS															
JUNIPERUS COMMUNIS															
LEPTODACTYLON PUNGENS			<1	25	<1	50							<1	67	
LINNAEA BOREALIS															
LONICERA INVOLUCRATA															
OPUNTIA POLYACANTHA	2	100	<1	25							3	100	2	67	
PRUNUS VIRGINIANA															
RHAMNUS ALNIFOLIA															
RIBES AUREUM															
RIBES CEREUM	<1	14													
RIBES INERME															
RIBES IRRIGUUM									<1	33					
RIBES LUCUSTRE															
ROSA ACICULARIS															
SALIX BEBBIANA															
SALIX EXIGUA															
SALIX LASIANDRA															
SALIX RIGIDA															
SHEPHERDIA CANADENSIS															
SYMPHORICARPOS ALBUS															
SYMPHORICARPOS OREOPHILUS			<1	25											
TETRADYMIA CANESCENS			1	50	12	100							2	100	
FORBS															
ACHILLEA MILLEFOLIUM			<1	50	<1	100					<1	100			
ACTAEA RUBRA															
AGASTACHE CUSICKII															
AGOSERIS GLAUCA	<1	14			<1	50							<1	33	
ALLIUM CERNUUM															
ALLIUM TEXTILE	<1	43	<1	50											
ANEMONE MULTIFIDA															
ANGELICA ARGUTA															
ANGELICA ROSEANA															

SPECIES	TYPE NO:	8		9		10		11		12		13		14	
		COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON
ANTENNARIA DIMORPHA				<1	50	<1	50							<1	33
ANTENNARIA MICROPHYLLA				5	50					<1	33				
ANTENNARIA PARVIFOLIA				<1	25										
ANTENNARIA UMBRINELLA															
ARABIS FECUNDA															
ARABIS HOLBOELLII		<1	43	<1	100					<1	100			<1	67
ARABIS NUTTALLII															
ARENARIA CONGESTA				2	50										
ARENARIA KINGII										<1	33				
ARENARIA NUTTALLII															
ARNICA LATIFOLIA															
ARTEMISIA DRACUNCULUS				1	25	<1	50	<1	100					<1	67
ARTEMISIA LUDOVICIANA															
ASTER CAMPESTRIS															
ASTER FALCATUS															
ASTER SCOPULORUM				<1	25	<1	50								
ASTRAGALUS ADSURGENS		<1	14					<1	100						
ASTRAGALUS AGRESTIS															
ASTRAGALUS CERAMICUS V. APUS														<1	33
ASTRAGALUS FLEXUOSUS						<1	50								
ASTRAGALUS GILVIFLORUS															
ASTRAGALUS KENTROPHYTA															
ASTRAGALUS PLATYTROPIS		<1	14												
ASTRAGALUS PURSHII		<1	57	<1	25										
CAMELINA MICROCARPA		<1	14												
CARDAMINE BREWERI															
CARDAMINE OLIGOSPERMA															
CASTILLEJA FLAVA				<1	50										
CASTILLEJA LINARIAEFOLIA		<1	14												
CASTILLEJA MINIATA															
CENTAUREA MACULOSA		3	14												
CHAENACTIS ALPINA															
CHAENACTIS DOUGLASII				<1	25									<1	100
CHENOPODIUM ALBUM		<1	14									<1	100		
CIRSIUM ARVENSE															
CIRSIUM UNDULATUM		<1	14												
COMANDRA UMBELLATA				<1	50	1	50							<1	67
CREPIS ACUMINATA		<1	14	<1	50										
CREPIS MODOCENSIS				<1	25										
CRYPTANTHA FENDLERI														<1	67
CRYPTANTHA INTERRUPTA		<1	29							<1	33				
CYMOPTERUS BIPINNATUS				<1	25										
DELPHINIUM BICOLOR		<1	14												
DESCURAINIA PINNATA										<1	67			<1	33
DESCURAINIA RICHARDSONII		<1	14									<1	100		
DESCURAINIA SOPHIA						<1	50								
DRABA NEMOROSA															
DRABA DENSIFOLIA															
DRABA OLIGOSPERMA										<1	67				
EPILOBIUM ALPINUM															
ERIGERON CAESPITOSUS		<1	29												
ERIGERON COMPOSITUS		<1	29	<1	25										
ERIGERON OCHROLEUCUS															
ERIGERON TWEEDYI										<1	67				
ERIOGONUM OVALIFOLIUM V. CELSUM				<1	25	<1	50							2	100
ERIOGONUM OVALIFOLIUM V. MACRO.				<1	25										
ERIOGONUM UMBELLATUM				<1	75	<1	50							<1	33
ERYSIMUM ASPERUM		<1	29												
ERYSIMUM INCONSPICUUM				<1	25	<1	50							<1	33
FRAGARIA VIRGINIANA															
FRASERA SPECIOSA															
GALIUM BOREALE															
GAURA COCCINEA															

SPECIES	TYPE NO:	8		9		10		11		12		13		14	
		COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON
GAYOPHYTUM RAMOSISSIMUM														<1	33
GERANIUM RICHARDSONII															
GEUM TRIFLORUM															
GILIA SPICATA								<1	100						
GRINDELIA SQUARROSA															
HAPLOPAPPUS ACAULIS				10	50										
HAPLOPAPPUS ARMERIOIDES		<1	29												
HELIANTHUS PETIOLARIS															
HEUCHARA PARVIFOLIA		<1	29	<1	25										
HEUCHARA RICHARDSONII															
HYMENOPAPPUS FILIFOLIUS															
IRIS MISSOURIENSIS															
IVESIA GORDONII															
LAPPULA REDOWSKII		<1	29			<1	50			<1	100	<1	100		
LEPIDIUM VIRGINICUM		<1	29												
LESQUERELA ALPINA		<1	29					<1	100						
LESQUERELLA PAYSONII?															
LEWISIA REDIVIVA				<1	25										
LINUM PERENNE				<1	25									7	100
LITHOSPERMUM INCISUM															
LOMATIUM TRITERNATUM				<1	25	<1	50								
LUPINUS ARGENTEUS						10	50							3	33
LUPINUS LEUCOPHYLLUS				<1	50										
LUPINUS SERICEUS						20	50								
LYGODESMIA JUNCEA															
MACHAERANTHERA CANESCENS				<1	50									2	67
MELILOTUS OFFICINALIS															
MENTHA ARVENSIS															
MENTZELIA ALBICAULIS								<1	100						
MENTZELIA OECAPETALA								<1	100						
MENTZELIA LAEVICAULIS															
MERTENSIA LANCEOLATA				<1	25										
MERTENSIA OBLONGIFOLIA						<1	100								
MERTENSIA VIRIDIS										<1	33				
MIMULIS GUTTATUS															
MIRABILIS LINEARIS															
OENOTHERA CAESPITOSA															
OROBANCHE FASCICULATA						<1	50								
OROBANCHE LUDOVICIANA															
OSMORHIZA DEPAUPERATA															
OXYTROPUS SERICEA		<1	43					<1	100						
PARNASSIA FIMBRIATA															
PEDICULARIS GROENLANDICA															
PEDICULARIS RACEMOSA															
PENSTEMON ARIDUS		<1	14	<1	50					<1	100				
PENSTEMON ATTENUATUS															
PENSTEMON ERIANTHERUS															
PENSTEMOM RADICOSUS				<1	25										
PETROPHYTON CAESPITOSUM										<1	33				
PHACELIA GLANDULOSA															
PHACELIA HASTATA				<1	25	<1	50							2	100
PHACELIA HETEROPHYLLA												<1	100		
PHACELIA INCANA										<1	33				
PHACELIA LINEARIS		<1	14									<1	100		
PHLOX DIFFUSA															
PHLOX HOODII		<1	14	1	25	<1	100							1	33
PHLOX LONGIFOLIA		<1	14	<1	50	<1	50							<1	67
PHLOX MUSCOIDES		4	43												
PHLOX PULVINATA															
PHYSARIA GEYERI															
PLANTAGO PATAGONICA		<1	14												
POLYGONUM RAMOSISSIMUM				<1	50									<1	33
POTENTILLA DIVERSIFOLIA															

SPECIES	TYPE NO:	8		9		10		11		12		13		14	
		COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON
POTENTILLA GLANDULOSA															
POTENTILLA GRACILIS															
POTENTILLA HIPPIANA															
POTENTILLA PENSYLVANICA		<1	29												
PSORALEA TENUIFLORA														20	67
PYROLA SECUNDA															
SAXIFRAGA BRONCHIALIS															
SCHOENOCRAMBE LINIFOLIA		<1	29							<1	33	<1	100		
SEDUM LANCEOLATUM		<1	14	<1	50										
SENECIO CANUS										<1	33				
SENECIO CRASSULUS															
SENECIO DIMORPHOPHYLLUS															
SIUM SUAVE															
SMILACINA STELLATA															
SOLIDAGO GIGANTEA															
SOLIDAGO MULTIRADIATA															
SOLIDAGO NANA															
SPHAERALCEA COCCINEA		<1	29												
STEPHANOMERIA RUNCINATA															
TARAXACUM LAEVIGATUM															
TARAXACUM OFFICINALE		<1	43	<1	50	<1	50			<1	67	<1	100		
THALICTRUM OCCIDENTALE															
THERMOPSIS MONTANA															
TOWNSENDIA HOOKERI		<1	14												
TOWNSENDIA MONTANA															
TRAGOPOGON DUBIUS		<1	14	<1	25	<1	50								
TRAGOPOGON PRATENSIS															
TRIFOLIUM LONGIPES															
TRIFOLIUM REPENS															
VALERIANA EDULIS															
VERBASCUM THAPSUS															
VERONICA AMERICANA															
VICIA AMERICANA															
VIOLA ADUNCA															
VIOLA ORBICULATA															
ZIGADENUS ELEGANS															
ZIGADENUS VENENOSUS		<1	14												
GRAMINOIDS															
AGROPYRON DASYSTACHYUM						<1	100							17	100
AGROPYRON SMITHII															
AGROPYRON SPICATUM		29	100	20	75					8	100	30	100		
AGROSTIS ALBA															
ARISTIDA LONGISETA															
BOUTELOUA GRACILIS		9	71												
BROMUS INERMIS															
BROMUS TECTORUM		5	29									30	100		
CALAMAGROSTIS CANADENSIS															
CALAMAGROSTIS PURPURASCENS															
CAREX ATHROSTACHYA															
CAREX DISPERMA															
CAREX FILIFOLIA															
CAREX PENSYLVANICA				<1	25										
CAREX PRAEGRACILIS															
CAREX ROSSII				<1	25					2	67	<1	100		
CAREX ROSTRATA															
CAREX STENOPHYLLA		1	43									<1	100		
CAREX VESICARIA															
DESCHAMPSIA CESPITOSA															
ELEOCHARIS PALUSTRIS															
ELYMUS CINEREUS															
FESTUCA IDAHOENSIS				35	100	40	100					10	100	<1	67

SPECIES	TYPE NO:	8		9		10		11		12		13		14	
		COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON
GLYCERIA STRIATA															
HESPEROCHLOA KINGII															
HORDEUM BRACHYANTHERUM															
JUNCUS BALTICUS															
KOELERIA CRISTATA		8	43	2	75	2	100							<1	100
MUHLENBERGIA CUSPIDATA															
ORYZOPSIS HYMENOIDES		2	29					<1	100	<1	67			5	100
PHALARIS ARUNDINACEA															
PHLEUM PRATENSE															
POA ALPINA															
POA GRACILLIMA															
POA INTERIOR															
POA JUNCIFOLIA															
POA PALUSTRIS															
POA PRATENSIS															
POA SANDBERGII		6	86	1	100	5	100			<1	100	1	100	5	67
SITANION HYSTRIX								<1	100						
STIPA COMATA		11	86	30	25	40	100					<1	100	20	67
STIPA VIRIDULA				<1	25										
TRISETUM SPICATUM															
FERNS/ALLIES															
CHEILANTHES FEEI															
CYSTOPTERIS FRAGILIS				<1	25										
EQUISETUM ARVENSE															
EQUISETUM HYEMALE															
EQUISETUM LAEVIGATUM				<1	25										
SELAGINELLA OENSA		12	29	<1	25										
WOODSIA OREGANA															
WOODSIA SCOPULINA												<1	100		

SPECIES	TYPE NO:	15 (N = 2)		16 (N = 1)		17 (N = 2)		18 (N = 1)		19 (N = 1)		20 (N = 1)		21 (N = 1)	
		COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON
TREES															
ABIES LASIOCARPA															
JUNIPERUS SCOPULORUM						2	100								
PICEA ENGELMANNII				80	100										
PINUS ALBICAULIS															
PINUS FLEXILIS															
POPULUS TRICHOCARPA						80	100								
PSEUDOTSUGA MENZIESII															
SHRUBS															
AMELANCHIER UTAHENSIS															
ARCTOSTAPHYLOS UVA-URSI															
ARTEMISIA ARBUSCULA															
ARTEMISIA FRIGIDA		<1	50												
ARTEMISIA TRIDENTATA		<1	50												
ARTEMISIA TRIPARTITA															
ATRIPLEX NUTTALLII															
BETULA OCCIDENTALIS						1	50								
CERCOCARPUS LEDIFOLIUS															
CHRYSOTHAMNUS NAUSEOSUS		<1	100												
CHRYSOTHAMNUS VISCIDIFLORUS															
CORNUS STOLONIFERA				<1	100	1	50	<1	100						
CORYPHANTHA VIVIPARA															
ERIOGONUM MICROTHECUM		<1	100												
EUROTIA LANATA															
GUTIERREZIA SAROTHRAE		1	100												
HAPLOPAPPUS SUFFRUTICOSUS															
JUNIPERUS COMMUNIS															
LEPTODACTYLON PUNGENS															
LINNAEA BOREALIS				20	100										
LONICERA INVOLUCRATA				<1	100										
OPUNTIA POLYACANTHA		<1	100												
PRUNUS VIRGINIANA						<1	50								
RHAMNUS ALNIFOLIA				<1	100										
RIBES AUREUM						1	50								
RIBES CEREUM															
RIBES INERME				<1	100										
RIBES IRRIGUUM															
RIBES LUCUSTRE						2	100								
ROSA ACICULARIS						45	100								
SALIX BEBBIANA										<1	100				
SALIX EXIGUA						10	50	98	100						
SALIX LASIANDRA						1	50								
SALIX RIGIDA								<1	100						
SHEPHERDIA CANADENSIS															
SYMPHORICARPOS ALBUS						2	100								
SYMPHORICARPOS OREOPHILUS															
TETRADYMIA CANESCENS															
FORBS															
ACHILLEA MILLEFOLIUM															
ACTAEA RUBRA				20	100										
AGASTACHE CUSICKII															
AGOSERIS GLAUCA										<1	100				
ALLIUM CERNUUM				<1	100										
ALLIUM TEXTILE															
ANEMONE MULTIFIDA															
ANGELICA ARGUTA				<1	100										
ANGELICA ROSEANA															

SPECIES	TYPE NO:	15		16		17		18		19		20		21	
		COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON
ANTENNARIA DIMORPHA															
ANTENNARIA MICROPHYLLA										3	100				
ANTENNARIA PARVIFOLIA															
ANTENNARIA UMBRINELLA															
ARABIS FECUNDA															
ARABIS HOLBOELLII															
ARABIS NUTTALLII															
ARENARIA CONGESTA															
ARENARIA KINGII															
ARENARIA NUTTALLII															
ARNICA LATIFOLIA															
ARTEMISIA DRACUNCULUS		<1	50							<1	100				
ARTEMISIA LUDOVICIANA						<1	100	<1	100	1	100				
ASTER CAMPESTRIS						<1	50								
ASTER FALCATUS										<1	100				
ASTER SCOPULORUM															
ASTRAGALUS ADSURGENS		<1	50												
ASTRAGALUS AGRESTIS										<1	100				
ASTRAGALUS CERAMICUS V. APUS															
ASTRAGALUS FLEXUOSUS															
ASTRAGALUS GILVIFLORUS		<1	50												
ASTRAGALUS KENTROPHYTA															
ASTRAGALUS PLATYTROPIS															
ASTRAGALUS PURSHII															
CAMELINA MICROCARPA															
CARDAMINE BREWERI				<1	100										
CARDAMINE OLIGOSPERMA														1	100
CASTILLEJA FLAVA															
CASTILLEJA LINARIAEFOLIA															
CASTILLEJA MINIATA															
CENTAUREA MACULOSA															
CHAENACTIS ALPINA															
CHAENACTIS DOUGLASII															
CHENOPODIUM ALBUM															
CIRSIUM ARVENSE								<1	100	1	100	<1	100	3	100
CIRSIUM UNDULATUM		<1	100												
COMANDRA UMBELLATA															
CREPIS ACUMINATA															
CREPIS MODOCENSIS															
CRYPTANTHA FENDLERI															
CRYPTANTHA INTERRUPTA															
CYMOPTERUS BIPINNATUS															
DELPHINIUM BICOLOR															
DESCURAINIA PINNATA															
DESCURAINIA RICHARDSONII															
DESCURAINIA SOPHIA															
DRABA NEMOROSA															
DRABA DENSIFOLIA															
DRABA OLIGOSPERMA															
EPILOBIUM ALPINUM				<1	100										
ERIGERON CAESPITOSUS															
ERIGERON COMPOSITUS															
ERIGERON OCHROLEUCUS															
ERIGERON TWEEDYI															
ERIOGONUM OVALIFOLIUM V. CELSUM															
ERIOGONUM OVALIFOLIUM V. MACRO.															
ERIOGONUM UMBELLATUM															
ERYSIMUM ASPERUM															
ERYSIMUM INCONSPICUUM															
FRAGARIA VIRGINIANA				10	100										
FRASERA SPECIOSA															
GALIUM BOREALE				1	100	10	50								
GAURA COCCINEA															

SPECIES	TYPE NO:	15		16		17		18		19		20		21	
		COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON
GAYOPHYTUM RAMOSISSIMUM															
GERANIUM RICHARDSONII				<1	100										
GEUM TRIFLORUM															
GILIA SPICATA															
GRINDELIA SQUARROSA										1	100				
HAPLOPAPPUS ACAULIS															
HAPLOPAPPUS ARMERIOIDES		<1	100												
HELIANTHUS PETIOLARIS															
HEUCHARA PARVIFOLIA															
HEUCHARA RICHARDSONII															
HYMENOPAPPUS FILIFOLIUS		<1	50												
IRIS MISSOURIENSIS															
IVESIA GORDONII															
LAPPULA REDOWSKII															
LEPIDIUM VIRGINICUM										<1	100				
LESQUERELA ALPINA		<1	50												
LESQUERELLA PAYSONII?															
LEWISIA REDIVIVA															
LINUM PERENNE															
LITHOSPERMUM INCISUM															
LOMATIUM TRITERNATUM															
LUPINUS ARGENTEUS															
LUPINUS LEUCOPHYLLUS															
LUPINUS SERICEUS															
LYGODESMIA JUNCEA															
MACHAERANTHERA CANESCENS															
MELILOTUS OFFICINALIS										<1	100				
MENTHA ARVENSIS								1	100					3	100
MENTZELIA ALBICAULIS															
MENTZELIA DECAPETALA		<1	50												
MENTZELIA LAEVICAULIS		<1	50												
MERTENSIA LANCEOLATA															
MERTENSIA OBLONGIFOLIA															
MERTENSIA VIRIDIS															
MIMULIS GUTTATUS				<1	100										
MIRABILIS LINEARIS															
OENOTHERA CAESPITOSA															
OROBANCHE FASCICULATA															
OROBANCHE LUDOVICIANA															
OSMORHIZA DEPAUPERATA				<1	100										
OXYTROPUS SERICEA		<1	50												
PARNASSIA FIMBRIATA				<1	100										
PEDICULARIS GROENLANDICA				<1	100										
PEDICULARIS RACEMOSA															
PENSTEMON ARIDUS		<1	50												
PENSTEMON ATTENUATUS															
PENSTEMON ERIANTHERUS		<1	50												
PENSTEMOM RADICOSUS															
PETROPHYTON CAESPITOSUM															
PHACELIA GLANDULOSA		<1	50												
PHACELIA HASTATA															
PHACELIA HETEROPHYLLA															
PHACELIA INCANA															
PHACELIA LINEARIS															
PHLOX DIFFUSA															
PHLOX HOODII															
PHLOX LONGIFOLIA															
PHLOX MUSCOIDES															
PHLOX PULVINATA															
PHYSARIA GEYERI															
PLANTAGO PATAGONICA															
POLYGONUM RAMOSISSIMUM															
POTENTILLA DIVERSIFOLIA															

SPECIES	TYPE NO:	15		16		17		18		19		20		21	
		COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON
POTENTILLA GLANDULOSA															
POTENTILLA GRACILIS										<1	100				
POTENTILLA HIPPIANA										<1	100				
POTENTILLA PENSYLVANICA															
PSORALEA TENUIFLORA															
PYROLA SECUNDA				<1	100										
SAXIFRAGA BRONCHIALIS															
SCHOENOCRAMBE LINIFOLIA															
SEDUM LANCEOLATUM															
SENECIO CANUS															
SENECIO CRASSULUS															
SENECIO DIMORPHOPHYLLUS															
SIUM SUAVE								<1	100						
SMILACINA STELLATA				10	100	15	100								
SOLIDAGO GIGANTEA						2	100	<1	100	<1	100	<1	100		
SOLIDAGO MULTIRADIATA															
SOLIDAGO NANA															
SPHAERALCEA COCCINEA		<1	50												
STEPHANOMERIA RUNCINATA		<1	50												
TARAXACUM LAEVIGATUM															
TARAXACUM OFFICINALE		<1	50	<1	100	<1	50								
THALICTRUM OCCIDENTALE				3	100										
THERMOPSIS MONTANA						1	50								
TOWNSENDIA HOOKERI															
TOWNSENDIA MONTANA															
TRAGOPOGON DUBIUS						<1	50								
TRAGOPOGON PRATENSIS										<1	100				
TRIFOLIUM LONGIPES										1	100				
TRIFOLIUM REPENS						<1	50								
VALERIANA EDULIS															
VERBASCUM THAPSUS												<1	100		
VERONICA AMERICANA				<1	100										
VICIA AMERICANA														<1	100
VIOLA ADUNCA												<1	100		
VIOLA ORBICULATA				3	100										
ZIGADENUS ELEGANS															
ZIGADENUS VENENOSUS															
GRAMINOIDS															
AGROPYRON DASYSTACHYUM						<1	100					<1	100		
AGROPYRON SMITHII										60	100				
AGROPYRON SPICATUM		2	100												
AGROSTIS ALBA						1	50								
ARISTIDA LONGISETA		2	100												
BOUTELOUA GRACILIS		<1	100												
BROMUS INERMIS						7	100			<1	100				
BROMUS TECTORUM															
CALAMAGROSTIS CANADENSIS				10	100										
CALAMAGROSTIS PURPURASCENS															
CAREX ATHROSTACHYA						<1	50								
CAREX DISPERMA				1	100										
CAREX FILIFOLIA															
CAREX PENSYLVANICA															
CAREX PRAEGRACILIS						10	50					<1	100		
CAREX ROSSII															
CAREX ROSTRATA				3	100	<1	100								
CAREX STENOPHYLLA										10	100				
CAREX VESICARIA														<1	100
DESCHAMPSIA CESPITOSA								<1	100						
ELEOCHARIS PALUSTRIS								<1	100						
ELYMUS CINEREUS						<1	50					98	100		
FESTUCA IDAHOENSIS															

SPECIES	TYPE NO:	15		16		17		18		19		20		21	
		COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON	COV	CON
GLYCERIA STRIATA				<1	100										
HESPEROCHLOA KINGII															
HORDEUM BRACHYANTHERUM										<1	100				
JUNCUS BALTICUS										1	100	10	100		
KOELERIA CRISTATA										20	100	1	100		
MUHLENBERGIA CUSPIDATA										10	100	1	100		
ORYZOPSIS HYMENOIDES		10	100												
PHALARIS ARUNDINACEA						1	50	1	100					98	100
PHLEUM PRATENSE						3	50								
POA ALPINA															
POA GRACILLIMA															
POA INTERIOR															
POA JUNCIFOLIA															
POA PALUSTRIS						30	100			3	100			10	100
POA PRATENSIS						30	100			10	100	10	100		
POA SANDBERGII															
SITANION HYSTRIX															
STIPA COMATA												<1	100		
STIPA VIRIDULA															
TRISETUM SPICATUM															
FERNS/ALLIES															
CHEILANTHES FEEI															
CYSTOPTERIS FRAGILIS															
EQUISETUM ARVENSE				50	100										
EQUISETUM HYEMALE										30	100				
EQUISETUM LAEVIGATUM															
SELAGINELLA DENSA															
WOOOSIA OREGANA															
WOODSIA SCOPULINA															

APPENDIX E

VEGETATION CHARACTERISTICS FOR EACH SAMPLE PLOT

Percent cover values have been converted into 1-column scalars as follows:

% COVER CONVERSION

. = (absent)

+ = < 1 %

1 = 1-4 %

2 = 5-24.9 %

3 = 25-49.9 %

4 = 50-74.9 %

5 = 75-100 %

In these tables, type number codes are defined as follows:

TYPE NO. 1 = PINUS ALBICAULIS-ABIES LASIOCARPA
TYPE NO. 2 = PINUS FLEXILIS/AGROPYRON SPICATUM
TYPE NO. 3 = PINUS FLEXILIS/CERCOCARPUS LEDIFOLIUS
TYPE NO. 4 = PSEUDOTSUGA MENZIESII/CERCOCARPUS LEDIFOLIUS
TYPE NO. 5 = JUNIPERUS SCOPULORUM/ARTEMISIA TRIDENTATA
TYPE NO. 6 = JUNIPERUS SCOPULORUM/CERCOCARPUS LEDIFOLIUS
TYPE NO. 7 = ARTEMISIA ARBUSCULA/AGROPYRON SPICATUM
TYPE NO. 8 = ARTEMISIA TRIDENTATA/AGROPYRON SPICATUM
TYPE NO. 9 = ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS
TYPE NO. 10 = ARTEMISIA TRIPARTITA/FESTUCA IDAHOENSIS
TYPE NO. 11 = ATRIPLEX NUTTALLII/ORYZOPSIS HYMENOIDES
TYPE NO. 12 = CERCOCARPUS LEDIFOLIUS/AGROPYRON SPICATUM
TYPE NO. 13 = CERCOCARPUS LEDIFOLIUS/FESTUCA IDAHOENSIS
TYPE NO. 14 = AGROPYRON DASYSTACHYUM/PHACELIA HASTATA
TYPE NO. 15 = AGROPYRON SPICATUM/ORYZOPSIS HYMENOIDES
TYPE NO. 16 = PICEA/EQUISETUM ARVENSE
TYPE NO. 17 = POPULUS TRICHOCARPA/CORNUS STOLONIFERA
TYPE NO. 18 = SALIX EXIGUA
TYPE NO. 19 = AGROPYRON SMITHII
TYPE NO. 20 = ELYMUS CINEREUS
TYPE NO. 21 = PHYLARIS ARUNDINACEA

```
                    YEAR:9999999999999999999999999999999999999999999999999999999999
                         1111111111111111111111111111111111111111111111111111111111
                      PI:RRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRR
                         DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD
                 PLOT NO:44211231112040001112220000112233334423233304444455 5
                         12767644591446781230492359085223950680136781537892 01

                 TYPE NO:                                          1111111111111111122
SPECIES                  112333344445566666666788888889999001222344455678901
```

TREES

```
ABIES LASIOCARPA                  +1.....
JUNIPERUS SCOPULORUM              ...1111..2.21221+2111.....11....
PICEA ENGELMANNII                 +.....5.....
PINUS ALBICAULIS                  23.....
PINUS FLEXILIS                    ..111+1.....
POPULUS TRICHOCARPA               .....45....
PSEUDOTSUGA MENZIESII             .2....+2221.....+.....
```

SHRUBS

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AMELANCHIER UTAHENSIS             .....+.....
ARCTOSTAPHYLOS UVA-URSI           .+.+++1.....
ARTEMISIA ARBUSCULA               ..2.....3.....2.....
ARTEMISIA FRIGIDA                 ..2.+.+++1.11+12+12++212+2211+...11+...1+..+.....
ARTEMISIA TRIDENTATA              ..1....+.2+22222+.....23323423243...1+.1..2.+.....
ARTEMISIA TRIPARTITA              .....+.....32.....
ATRIPLEX NUTTALLII                .....+.....1.....
BETULA OCCIDENTALIS               .....1....
CERCOCARPUS LEDIFOLIUS            ..+323344241.23243343.....+.....2432.....
CHRYSOTHAMNUS NAUSEOSUS           ..+..11++...1.....1++.1..+.1.11.1+.1.++2++.....
CHRYSOTHAMNUS VISCIDIFLORUS       .....+.+...+.+.....++.....+..++12...1++.1.....
CORNUS STOLONIFERA                .....+.1+...
CORYPHANTHA VIVIPARA              .....+.....
ERIOGONUM MICROTHECUM             .....+.....+.....++.....
EUROTIA LANATA                    .....+..1..+.....+.....
GUTIERREZIA SAROTHRAE             .....+.1+1.11..+1+11+.....11.....
HAPLOPAPPUS SUFFRUTICOSUS         .+.....
JUNIPERUS COMMUNIS                +1.....
LEPTODACTYLON PUNGENS             .....++.....++.....
LINNAEA BOREALIS                  .....2.....
LONICERA INVOLUCRATA              .....+.....
OPUNTIA POLYACANTHA               .....1.12+11121+..111111+...+.....1+1.1+.....
PRUNUS VIRGINIANA                 .....+....
RHAMNUS ALNIFOLIA                 .....+.....
RIBES AUREUM                      .....1.....
RIBES CEREUM                      .....+....+.....+.....
RIBES INERME                      .....+.....
RIBES IRRIGUUM                    .....+.....
RIBES LUCUSTRE                    ..+.....1+....
ROSA ACICULARIS                   .....52....
SALIX BEBBIANA                    .....+..
SALIX EXIGUA                      .....25...
SALIX LASIANDRA                   .....1.....
SALIX RIGIDA                      .....+...
SHEPHERDIA CANADENSIS             .+.....
SYMPHORICARPOS ALBUS              .....1+....
SYMPHORICARPOS OREOPHILUS         .+....+.....+.....
TETRADYMIA CANESCENS              .....11.....1.112.....+11.....
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FORBS

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ACHILLEA MILLEFOLIUM              ++...++.....+.....++.++....+.....
ACTAEA RUBRA                      .....2.....
AGASTACHE CUSICKII                ..+.....
AGOSERIS GLAUCA                   .....+.....+.....+.....+..
```

	YEAR:9999999999999999999999999999999999999999999999999999
	1111111111111111111111111111111111111111111111111111
	PI:RRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRRR
	DDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDDD
	PLOT NO:44211231112040001112220000112233334423323330444445555
	12767644591446781230492359085223950680136781537892O1
	TYPE NO: 1111111111111111122
SPECIES	11233334444556666666678888888999900122234445567789O1
ALLIUM CERNUUM	.....+.....
ALLIUM TEXTILE	...+.+.....+.++.+1....+.++.++.....
ANEMONE MULTIFIDA	++.....
ANGELICA ARGUTA	.....+.....
ANGELICA ROSEANA	.+.....
ANTENNARIA DIMORPHA	.+.....+.++.....+.....
ANTENNARIA MICROPHYLLA	.....+2.....+.....1..
ANTENNARIA PARVIFOLIA	.....+.....+.....+.....
ANTENNARIA UMBRINELLA	+.....
ARABIS FECUNDA	...++.....1.....
ARABIS HOLBOELLII	+++..++.+++.....+...+..++++++...+++..++.....
ARABIS NUTTALLII	.....+.....
ARENARIA CONGESTA	++...+.....1+.....
ARENARIA KINGII	.....+.....1.....+.....
ARENARIA NUTTALLII	+++.....
ARNICA LATIFOLIA	.+.....
ARTEMISIA DRACUNCULUS	.....1+.+.....+++.....+..
ARTEMISIA LUDOVICIANA	.....1++1..
ASTER CAMPESTRIS	.....+.....
ASTER FALCATUS	.....+..
ASTER SCOPULORUM	.....+...+.....
ASTRAGALUS ADSURGENS	.....+.....+.....+.....+.....
ASTRAGALUS AGRESTIS	.....+..
ASTRAGALUS CERAMICUS V. APUS	.....+.....
ASTRAGALUS FLEXUOSUS	.....+.....
ASTRAGALUS GILVIFLORUS	.....+.....+.....
ASTRAGALUS KENTROPHYTA	++.....
ASTRAGALUS PLATYTROPIS	.....+....+....+.....
ASTRAGALUS PURSHII	.....+...++.+.+.+.....
CAMELINA MICROCARPA	.....+.....
CARDAMINE BREWERI	.....+.....
CARDAMINE OLIGOSPERMA	1
CASTILLEJA FLAVA	+...+.....++.....
CASTILLEJA LINARIAEFOLIA	.....+.....
CASTILLEJA MINIATA	++.....
CENTAUREA MACULOSA	.....1.....
CHAENACTIS ALPINA	.+.....
CHAENACTIS DOUGLASII	....+..+.....+.....+.....+++.....
CHENOPODIUM ALBUM	.....++++.++.++++...+.....+.....
CIRSIUM ARVENSE	.....+1+1
CIRSIUM UNDULATUM	.....+.....++.....
COMANDRA UMBELLATA	...+.....+.....+.+1.....++.....
CREPIS ACUMINATA	.....++.....+.....+.++.....
CREPIS MODOCENSIS	.....+.....
CRYPTANTHA FENDLERI	.....+.+.....
CRYPTANTHA INTERRUPTA	..++.++.....+.+.++.+++...++.....+.....
CYMOPTERUS BIPINNATUS	...+.++.....+.+...1.....+.....
DELPHINIUM BICOLOR	.....++.....+.....
DESCURAINIA PINNATA	.....++++.....++++.....++....+.....
DESCURAINIA RICHARDSONII	.....+.....+.....+.....+.....
DESCURAINIA SOPHIA	.....+.....
DRABA NEMOROSA	.....+.....+.....
DRABA DENSIFOLIA	.....+.....
DRABA OLIGOSPERMA	.+...1+.....+.....+.....++.....
EPILOBIUM ALPINUM	.....+.....
ERIGERON CAESPITOSUS	..+.....+.....+.+.....
ERIGERON COMPOSITUS	++.....+.+++...+.+..++....+.....

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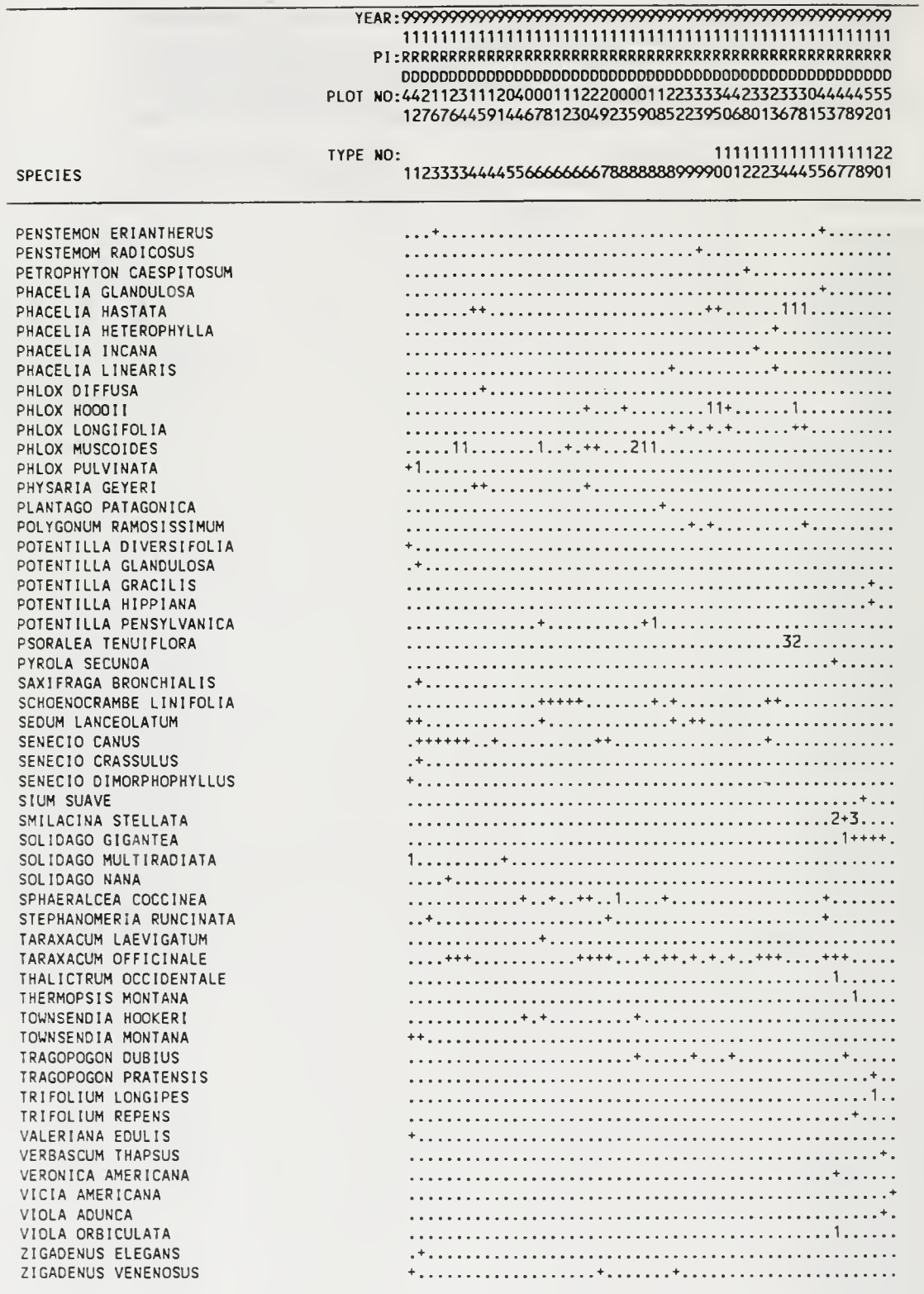
SPECIES	11233334444556666666678888888999900122234445567789O1
ERIGERON OCHROLEUCUS	.....+.....
ERIGERON TWEEDYI	++...++.....+.....+.+.....
ERIOGONUM OVALIFOLIUM V. CELSUM	.....++.....11+.....
ERIOGONUM OVALIFOLIUM V. MACRO.	.....+.....
ERIOGONUM UMBELLATUM	.....++1+.....+.....
ERYSIMUM ASPERUM	...+.....1....+..+.....
ERYSIMUM INCONSPICUUM	.....+.....+.+.....+.....
FRAGARIA VIRGINIANA	.....2.....
FRASERA SPECIOSA	++.....
GALIUM BOREALE	.....12.....
GAURA COCCINEA	.....+.....
GAYOPHYTUM RAMOSISSIMUM	.....+.....
GERANIUM RICHARDSONII	.....+.....
GEUM TRIFLORUM	.....+.....
GILIA SPICATA	...+.....+.....
GRINDELIA SQUARROSA	.....1..
HAPLOPAPPUS ACAULIS	11.1112.....1.....2+.....
HAPLOPAPPUS ARMERIOIDES	.....+.+.....+.+.....++.....
HELIANTHUS PETIOLARIS	.....+.....
HEUCHARA PARVIFOLIA	.....+++...++.....+.+....+.....
HEUCHARA RICHARDSONII	.....+.....
HYMENOPAPPUS FILIFOLIUS	.....+.....+.+.....+.....
IRIS MISSOURIENSIS	.....+.....
IVESIA GORDONII	1.....
LAPPULA REDOWSKII	.....+++.....+.++.+.....++.....+.++++.....
LEPIDIUM VIRGINICUM	.....++.....+..
LESQUERELA ALPINA	...+.....+.++.++....++.....+.....+.....
LESQUERELLA PAYSONII?	++...++.....
LEWISIA REDIVIVA	.....+.....+.....
LINUM PERENNE	+..++.1.....+.+.....+.....+2+.....
LITHOSPERMUM INCISUM	...+.++....+..+..+.....
LOMATIUM TRITERNATUM	.....+...+.....
LUPINUS ARGENTEUS	.....2.....1.....
LUPINUS LEUCOPHYLLUS	.....+1.....
LUPINUS SERICEUS	.....2.....
LYGODESMIA JUNCEA	.....+.....
MACHAERANTHERA CANESCENS	.....+.+.....1+.....
MELILOTUS OFFICINALIS	.....+..
MENTHA ARVENSIS	.....1..1
MENTZELIA ALBICAULIS	.....++.....+.....
MENTZELIA DECAPETALA	.....+.....+.....
MENTZELIA LAEVICAULIS	.....+.....
MERTENSIA LANCEOLATA	.....+.+.....+.....+.....
MERTENSIA OBLONGIFOLIA	.....1+.....
MERTENSIA VIRIDIS	.....+.....
MIMULIS GUTTATUS	.....+.....
MIRABILIS LINEARIS	.....+.....
OENOTHERA CAESPITOSA	..+.....+.....
OROBANCHE FASCICULATA	..+.....+.....
OROBANCHE LUDOVICIANA	.....+.....
OSMORHIZA DEPAUPERATA	.....+.....
OXYTROPUS SERICEA	.....+.+.+.....+.....+.....
PARNASSIA FIMBRIATA	.....+.....
PEDICULARIS GROENLANDICA	.....+.....
PEDICULARIS RACEMOSA	++.....
PENSTEMON ARIDUS	..+.++++.+.....++.....+.++....+++.....+.....
PENSTEMON ATTENUATUS	.1.....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TYPE NO: 1111111111111111122
SPECIES 11233334444556666666678888888999900122234445567789O1
PENSTEMON ERIANTHERUS
PENSTEMOM RADICOSUS
PETROPHYTON CAESPITOSUM
PHACELIA GLANDULOSA
PHACELIA HASTATA
PHACELIA HETEROPHYLLA
PHACELIA INCANA
PHACELIA LINEARIS
PHLOX DIFFUSA
PHLOX HOOOII
PHLOX LONGIFOLIA
PHLOX MUSCOIDES
PHLOX PULVINATA
PHYSARIA GEYERI
PLANTAGO PATAGONICA
POLYGONUM RAMOSISSIMUM
POTENTILLA DIVERSIFOLIA
POTENTILLA GLANDULOSA
POTENTILLA GRACILIS
POTENTILLA HIPPIANA
POTENTILLA PENSYLVANICA
PSORALEA TENUIFLORA
PYROLA SECUNDA
SAXIFRAGA BRONCHIALIS
SCHOENOCRAMBE LINIFOLIA
SEDUM LANCEOLATUM
SENECIO CANUS
SENECIO CRASSULUS
SENECIO DIMORPHOPHYLLUS
SIUM SUAVE
SMILACINA STELLATA
SOLIDAGO GIGANTEA
SOLIDAGO MULTIRADIATA
SOLIDAGO NANA
SPHAERALCEA COCCINEA
STEPHANOMERIA RUNCINATA
TARAXACUM LAEVIGATUM
TARAXACUM OFFICINALE
THALICTRUM OCCIDENTALE
THERMOPSIS MONTANA
TOWNSENDIA HOOKERI
TOWNSENDIA MONTANA
TRAGOPOGON DUBIUS
TRAGOPOGON PRATENSIS
TRIFOLIUM LONGIPES
TRIFOLIUM REPENS
VALERIANA EDULIS
VERBASCUM THAPSUS
VERONICA AMERICANA
VICIA AMERICANA
VIOLA ADUNCA
VIOLA ORBICULATA
ZIGADENUS ELEGANS
ZIGADENUS VENENOSUS

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	PLOT NO:44211231112040001112220000112233334423323330444445555
	12767644591446781230492359085223950680136781537892O1
	TYPE NO: 111111111111111122
SPECIES	11233334444556666666678888888999900122234445567789O1
GRAMINOIDS	
AGROPYRON DASYSTACHYUM	.....++.....222...1+..+.
AGROPYRON SMITHII	.....4..
AGROPYRON SPICATUM	..2+113++2+322332212132232343322....1+23...+1.....
AGROSTIS ALBA	.....1....
ARISTIDA LONGISETA	.....+2...121+.....1+.....
BOUTELOUA GRACILIS	.....21...+12...22.3++.....++.....
BROMUS INERMIS	.....21.+..
BROMUS TECTORUM	.....+.2.....3.....
CALAMAGROSTIS CANADENSIS	.....2.....
CALAMAGROSTIS PURPURASCENS	.2.....
CAREX ATHROSTACHYA	.....+....
CAREX DISPERMA	.....1.....
CAREX FILIFOLIA	.....1.+1.....
CAREX PENSYLVANICA	...1.....+.....
CAREX PRAEGRACILIS	.....2..+.
CAREX ROSSII	++.++21...+.....1.....+.....+1+.....
CAREX ROSTRATA	.....1++....
CAREX STENOPHYLLA	.....1.....+.1..+.....+.....2..
CAREX VESICARIA	.....+
DESCHAMPSIA CESPITOSA	.....+...
ELEOCHARIS PALUSTRIS	.....+...
ELYMUS CINEREUS	.....+...5.
FESTUCA IDAHOENSIS	.....423343....2+.+.....
GLYCERIA STRIATA	.....+.....
HESPEROCHLOA KINGII	..1.....
HORDEUM BRACHYANTHERUM	.....+..
JUNCUS BALTICUS	.....12.
KOELERIA CRISTATA	.....2.....+..+1...21+.111.....++1.....21.
MUHLENBERGIA CUSPIDATA	.....21.
ORYZOPSIS HYMENOIDES	...11+1....12+1111121.+1.....++.1.21122.....
PHALARIS ARUNDINACEA	.....1.1..5
PHLEUM PRATENSE	.....1....
POA ALPINA	+.....
POA GRACILLIMA	.+.....
POA INTERIOR	.+.....
POA JUNCIFOLIA	.....+.....
POA PALUSTRIS	.....23.1.2
POA PRATENSIS	.....33.22.
POA SANDBERGII	.+...1.1+++1.11.11.+1..1212+2111++2.+++1+2.....
SITANION HYSTRIX	.+.....+.....
STIPA COMATA	.....1.....23.1+121...2+.2122...334....+22.....+.
STIPA VIRIDULA	.....+.....
TRISETUM SPICATUM	+.....
FERNS/ALLIES	
CHEILANTHES FEEI	.....+..+.....
CYSTOPTERIS FRAGILIS	.....+.....
EQUISETUM ARVENSE	.....4.....
EQUISETUM HYEMALE	.....3..
EQUISETUM LAEVIGATUM	.....+.....
SELAGINELLA DENSA	.....+....1.11+.....21....+.....
WOODSIA OREGANA	.....+..+.....
WOODSIA SCOPULINA	.....+...+.....+.....

APPENDIX F

SITE CHARACTERISTICS FOR EACH SAMPLE PLOT

Definitions for the codes used in these tables are as follows:

LOCATION CHARACTERISTICS

LEGAL = legal location description
T = Township
R = Range
S = Section, quarter section, quarter of quarter section

ENVIRONMENTAL CHARACTERISTICS

PM = parent material

Sedimentary
LIME - limestone
SAND - sandstone
SILT - siltstone
CASH - calcareous shale
CONG - conglomerate

Igneous
BASA - basalt
RHYO - rhyolite
GRAN - granite

Metamorphic
QUAR - quartzite
SCHI - schist
GRGN - granite gneiss
PERI - peridotite

Miscellaneous
GRAL - gravelly alluvium
SAAL - sandy alluvium
MIAL - mixed alluvium
DUNE - sand dunes

LF = landform

residual mountain slopes and ridges
- RMDS dissected straight slopes
- RMDC dissected convex slopes
- RMRI ridges

glaciated mountain slopes and ridges
- GMRI ridges

rolling uplands
- RULR low relief rolling uplands
- RUMR moderate relief rolling uplands
- RUDR dissected rolling uplands

breaklands
- BLDR dissected river breaks
- BLSB structural breaks
- BLSH stream headlands

structurally controlled mountain slopes
- SCDS dip slopes
- SCPL plateaus

alluvial-colluvial-lacustrine forms

ACFP	flood plains
ACTE	terraces
ACAB	alluvial basins

mass wasted slopes

MWLS	landslides

PP = plot position

wide valley bottom (>300 feet wide)

WVSC	stream channel
WVSB	stream bar
WVFP	flood plain (including levees if appropriate)
WVTE	terrace

slope

SLSS	short slope, neither upper nor lower (<100 ft)
SLLS	lower slope
SLMS	mid slope
SLUS	upper slope

ridge

RINR	narrow ridge (<100 ft wide)
RIWR	wide ridge summit (>100 ft wide)

bench

BNCH	bench in mountainous terrain

SS = slope shape

S - straight or even
R - rounded or convex
D - depression or concave
P - patterned (micro-relief of hummocks and swales)
U - undulating pattern of low ridges or knolls and draws

ASP = aspect (°)

% = % slope

ELEV = elevation (ft)

EP = erosion potential

SA - soil surface is <u>stable</u> with no evidence of accelerated erosion
UP - soil surface is <u>unstable</u> because of lack of <u>protective</u> vegetation cover

ET = erosion type
- NO - none
- SE - sheet erosion
- RE - rill erosion
- GE - gully erosion
- WE - wind erosion
- TD - terrace development
- SL - slide

% COVER = % ground cover
- S - bare soil
- G - gravel
- R - rock
- L - litter and duff
- W - wood
- M - moss (also includes Selaginella)
- BV - basal vegetation
- O - other (e.g., lichen)

SOIL CHARACTERISTICS

SUBGROUP = soil subgroup as defined by the Soil Taxonomy

DEPTH = estimated soil depth
- VS - very shallow (<10 inches deep)
- SH - shallow (10-20 inches deep)
- MO - moderately deep (20-30 inches deep)
- DE - deep (30-60 inches deep)
- VD - very deep (>60 inches deep)

TEXTURE = soil texture (e.g., S - sand; SIL - silt loam)
CO = coarsest texture in profile
FI = finest texture in profile

FRAGS = coarse fragment content
MIN = minimum coarse fragment content in profile
MAX = maximum coarse fragment content in profile
- NO - none to few (<20% coarse fragment volume)
- GR - gravelly (20-50% gravel volume)
- VG - very gravelly (50-90% gravel volume)
- CO - cobbly (20-50% cobble volume)
- VC - very cobbly (50-90% cobble volume)
- ST - stony (20-50% stone volume)
- VS - very stony (50-90% stone volume)

EFFER = effervescence in response to 10% HCl
ST = depth to strong effervescence (cm)
VI = depth to violent effervescence (cm)
(note: if strong or violent effervescence does not exist in the profile or if the depth to such

effervescence exceeds 50 cm then a value of "99" is indicated)

AWHC = available water holding capacity (cm H_2O/50 cm soil or cm H_2O/number of cm to bedrock)
the terms "low", "medium", "high", and "very high" as used in the text in reference to AWHC are defined as follows:

low	=	0 - 2.5 cm
medium	=	2.6 - 5.0 cm
high	=	5.1 - 7.5 cm
very high	=	> 7.6 cm

PINUS ALBICAULIS-ABIES LASIOCARPA

TYPE NO: 1

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	R	S
91RD 41	NEMESIS MOUNTAIN COLE CREEK RIDGE	BEAVERHEAD	14S	2E	31 NWNE
91RD 42	NEMESIS MOUNTAIN SOUTHEAST RIDGE	BEAVERHEAD	14S	1E	36 NENE

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 41	QUAR	GMRI	RINR	R	140	15	9320	UP	SE	20	40	20	10	3	0	3	0
91RD 42	QUAR	GMRI	SLUS	P	190	60	8980	UP	SE	10	20	30	30	3	1	10	0

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	FI	FRAGS MIN	MAX	EFFER ST	VI	AWHC
91RD 41	LITHIC CRYOCHREPT	SH	SL	SL	GR	VG	22	99	1.4
91RD 42	ARGIC CRYOBOROLL	MO	SL	L	NO	VG	99	20	3.9

PINUS FLEXILIS/AGROPYRON SPICATUM

TYPE NO: 2

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	R	S
91RD 27	BIG SHEEP CREEK SLIDE SOUTHEAST	BEAVERHEAD	15S	10W	10 NESW

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 27	LIME	MWLS	SLMS	S	160	65	7000	UP	SL	10	50	10	10	1	0	20	0

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	FI	FRAGS MIN	MAX	EFFER ST	VI	AWHC
91RD 27	TYPIC USTORTHENT	MO	L	SIL	VG	VG	99	0	3.0

PINUS FLEXILIS/CERCOCARPUS LEDIFOLIUS

TYPE NO: 3

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	R	S
91RD 16	LIME GULCH SPRING SOUTH	SILVER BOW	1S	9W	11 NWNW
91RD 17	QUARTZ HILL GULCH	BEAVERHEAD	1S	10W	8 NESE
91RD 26	SCUDDER CREEK EXCLOSURE	BEAVERHEAD	6S	12W	20 NENE
91RD 34	SCUDDER CREEK	BEAVERHEAD	6S	12W	20 NENE

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 16	LIME	RMDC	SLMS	R	240	40	6220	UP	SE	20	60	10	10	1	1	3	0
91RD 17	LIME	RMDC	SLMS	P	120	65	6040	UP	RE	40	40	20	3	1	0	3	0
91RD 26	LIME	SCDS	RINR	R	100	20	6680	SA	SE	20	3	10	40	1	1	20	0
91RD 34	LIME	SCDS	SLMS	R	280	45	6580	UP	SE	20	10	3	30	3	1	30	0

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	FI	FRAGS MIN	MAX	EFFER ST	VI	AWHC
91RD 16	LITHIC USTORTHENT	VS	S	LS	GR	VG	0	7	0.3
91RD 17	LITHIC USTORTHENT	SH	L	L	NO	GR	0	37	5.5
91RD 26	LITHIC USTORTHENT	SH	SL	SL	NO	VG	3	10	1.7
91RD 34	LITHIC USTORTHENT	MO	SL	L	NO	VG	6	13	5.1

PSEUDOTSUGA MENZIESII/CERCOCARPUS LEDIFOLIUS

TYPE NO: 4

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	R	S
91RD 14	LIME GULCH SOUTH	SILVER BOW	1S	9W	15 NWNE
91RD 15	SELWAY SPRING	SILVER BOW	1S	9W	15 SWSE
91RD 19	MOOSE CREEK/MUD SPRING RIDGE	SILVER BOW	1S	9W	23 SWNE
91RD 21	GOAT MOUNTAIN SUMMIT	SILVER BOW	1S	9W	32 NWNE

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 14	GRAN	RMDC	SLMS	P	250	65	5920	UP	RE	10	70	10	3	1	1	3	0
91RD 15	GRAN	RMDC	SLMS	R	270	35	5920	UP	RE	10	60	10	20	1	0	3	0
91RD 19	SCHI	RMDC	SLUS	R	210	50	6600	UP	SE	20	20	20	30	1	1	10	0
91RD 21	QUAR	RMRI	RINR	R	190	5	6460	SA	SE	3	20	20	40	3	1	10	0

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	FI	FRAGS MIN	MAX	EFFER ST	VI	AWHC
91RD 14	TYPIC USTORTHENT	MO	S	LS	GR	VG	99	99	1.1
91RD 15	TYPIC USTORTHENT	MO	S	SL	GR	VG	99	99	1.3
91RD 19	TYPIC ARGIBOROLL	MO	L	CL	GR	VG	99	99	3.3
91RD 21	LITHIC ARGIBOROLL	SH	SIL	CL	GR	VC	20	35	3.2

JUNIPERUS SCOPULORUM/ARTEMISIA TRIDENTATA

TYPE NO: 5

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	R	S
91RD 4	BLOCK MOUNTAIN SUMMIT	MADISON	4S	8W	23 SESE
91RD 44	SANOY HOLLOW QUARTZITE RIDGE SOUTH	MADISON	4S	8W	22 NESE

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 4	BASA	SCPL	RINR	P	150	9	5995	SA	SE	10	30	30	10	1	0	20	0
91RD 44	CONG	RMDC	SLSS	P	180	35	5540	UP	SE	20	40	20	3	1	1	20	0

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	FI	FRAGS MIN	MAX	EFFER ST	VI	AWHC
91RD 4	LITHIC USTORTHENT	VS	SL	SIL	NO	VG	12	99	2.0
91RD 44	BOROLLIC LITHIC CALCIORTHID	SH	SL	L	GR	VG	99	0	3.0

JUNIPERUS SCOPULORUM/CERCOCARPUS LEDIFOLIUS

TYPE NO: 6

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	R	S
91RD 6	SANDY HOLLOW QUARTZITE RIDGE NORTH	MADISON	4S	8W	22 NESE
91RD 7	HOGBACK SOUTH SUMMIT	BEAVERHEAD	5S	8W	16 SWSW
91RD 8	HOGBACK MICROWAVE STATION	BEAVERHEAD	5S	8W	16 SWSE
91RD 11	HOGBACK NORTH END	BEAVERHEAD	5S	8W	2 NWSW
91RD 12	HOGBACK NORTH RIDGE	BEAVERHEAD	5S	8W	2 SWNW
91RD 13	HOGBACK CENTRAL RIDGE	BEAVERHEAD	5S	8W	15 NWNW
91RD 20	GOAT MOUNTAIN SOUTH RIDGE	SILVER BOW	1S	9W	32 SENE
91RD 24	LIME GULCH SPRING NORTH	SILVER BOW	1S	9W	11 NWNW

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 6	CONG	SCDS	SLSS	R	320	65	5600	SA	NO	0	1	60	20	1	1	20	0
91RD 7	QUAR	SCDS	SLUS	R	335	20	5880	SA	SE	3	10	30	30	1	3	20	0
91RD 8	QUAR	RMDS	SLUS	P	165	65	5750	SA	SE	3	10	50	10	1	1	20	0
91RD 11	QUAR	SCDS	BNCH	S	320	6	5490	UP	SE	20	20	20	20	1	3	10	1
91RD 12	QUAR	SCDS	SLUS	P	285	30	5640	SA	SE	10	30	20	10	1	10	20	1
91RD 13	QUAR	RMDS	SLUS	P	145	80	5460	SA	SE	3	20	70	3	1	1	10	0
91RD 20	LIME	SCDS	SLMS	R	160	25	5560	UP	SE	20	40	3	30	1	1	10	0
91RD 24	LIME	RMDC	SLUS	R	240	15	6240	UP	SE	30	20	1	30	1	1	10	0

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	FI	FRAGS MIN	MAX	EFFER ST	VI	AWHC
91RD 6	LITHIC USTORTHENT	SH	L	CL	ST	VG	99	99	2.3
91RD 7	LITHIC USTORTHENT	SH	LS	SL	NO	VS	99	99	1.7
91RD 8	LITHIC USTIC TORRIORTHENT	SH	SL	L	GR	VS	0	99	2.4
91RD 11	LITHIC USTIC TORRIORTHENT	SH	SL	L	GR	VS	99	6	1.7
91RD 12	TYPIC USTORTHENT	MO	LS	SL	GR	CO	9	20	1.9
91RD 13	LITHIC USTIC TORRIORTHENT	SH	SL	SL	CO	VS	15	99	3.4
91RD 20	BOROLLIC CALCIORTHID	MO	L	SCL	NO	GR	0	13	5.6
91RD 24	LITHIC USTIC TORRIORTHENT	SH	LS	SL	NO	VG	0	7	1.4

ARTEMISIA ARBUSCULA/AGROPYRON SPICATUM

TYPE NO: 7

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	LEGAL R	LEGAL S
91RD 29	BIG SHEEP CREEK SLIDE SOUTHWEST	BEAVERHEAD	15S	10W	10 NWNW

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 29	LIME	MWLS	SLMS	S	240	55	7080	UP	SL	20	40	1	10	1	0	30	0

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	TEXTURE FI	FRAGS MIN	FRAGS MAX	EFFER ST	EFFER VI	AWHC
91RD 29	TYPIC USTORTHENT	DE	L	L	VG	VG	99	0	3.0

ARTEMISIA TRIDENTATA/AGROPYRON SPICATUM

TYPE NO: 8

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	R	S
91RD 2	BLOCK MOUNTAIN SOUTH	MADISON	4S	8W	26 NENE
91RD 3	BLOCK MOUNTAIN CENTER	MADISON	4S	8W	23 SESE
91RD 5	BLOCK MOUNTAIN NORTH	MADISON	4S	8W	23 SENE
91RD 9	HOGBACK SODAK MINE ROAD	BEAVERHEAD	5S	8W	9 SESW
91RD 10	HOGBACK NORTHWEST	BEAVERHEAD	5S	8W	3 SWNE
91RD 18	MOOSE CREEK/CHICKEN GULCH CONFLUENCE	SILVER BOW	1S	9W	23 SESW
91RD 25	MAIDEN EXCLOSURE SOUTHWEST	BEAVERHEAD	1S	9W	32 SESW

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 2	BASA	RMDC	SLUS	R	185	40	5600	SA	SE	10	40	20	3	1	0	20	0
91RD 3	BASA	SCPL	RIWR	D	0	0	5990	SA	SE	10	30	10	30	1	1	20	0
91RD 5	BASA	RMDC	SLMS	R	5	40	5660	SA	SE	20	20	3	40	1	1	20	0
91RD 9	QUAR	SCDS	SLUS	R	300	20	5320	SA	SE	1	30	10	20	1	20	20	0
91RD 10	QUAR	SCDS	SLMS	R	295	55	5110	SA	SE	3	20	20	10	1	10	20	10
91RD 18	SCHI	RMDC	SLMS	D	140	40	5940	SA	SE	20	40	10	10	1	0	20	0
91RD 25	MIAL	ACTE	WVTE	S	360	2	5330	SA	SE	20	3	0	30	1	10	30	3

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	FI	FRAGS MIN	MAX	EFFER ST	VI	AWHC
91RD 2	BOROLLIC CALCIORTHID	MO	SL	CL	GR	CO	10	99	5.5
91RD 3	BOROLLIC LITHIC CALCIORTHID	SH	L	CL	GR	VC	9	21	3.5
91RD 5	ARIDIC ARGIBOROLL	MO	L	CL	NO	GR	28	99	6.9
91RD 9	BOROLLIC LITHIC CALCIORTHID	SH	L	CL	GR	VC	7	23	3.2
91RD 10	LITHIC ARGIBOROLL	SH	L	SCL	VG	VS	99	99	1.2
91RD 18	ARIDIC ARGIBOROLL	MO	L	CL	NO	GR	99	99	5.9
91RD 25	USTIC TORRIFLUVENT	VD	LS	SL	NO	VG	28	99	2.5

ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS

TYPE NO: 9

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	R	S
91RD 22	JOHNSON CREEK EXCLOSURE	SILVER BOW	1N	11W	18 SWNW
91RD 32	ELK GULCH MINE SOUTH	BEAVERHEAD	9S	7W	2 SWNE
91RD 33	ELK GULCH MINE NORTH	BEAVERHEAD	9S	7W	2 SWNE
91RD 39	CENTENNIAL SANDHILLS EAST #2	BEAVERHEAD	13S	1W	19 SENW

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 22	QUAR	RMDC	RIWR	R	190	15	6140	SA	SE	30	10	1	20	1	1	30	10
91RD 32	PERI	RMDC	SLMS	R	120	30	7500	UP	SE	30	20	10	20	1	0	20	0
91RD 33	GRGN	RMDC	SLMS	R	130	35	7560	UP	SE	20	10	20	20	3	1	30	0
91RD 39	DUNE	RULR	SLMS	P	80	1	6680	SA	WE	40	0	0	30	3	0	30	0

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	FI	FRAGS MIN	MAX	EFFER ST	VI	AWHC
91RD 22	TYPIC ARGIBOROLL	DE	L	C	NO	GR	36	99	6.1
91RD 32	LITHIC ARGIBOROLL	SH	L	CL	NO	VG	99	99	2.2
91RD 33	LITHIC ARGIBOROLL	SH	L	CL	NO	VG	99	99	2.2
91RD 39	TYPIC USTIPSAMMENT	VD	S	LS	NO	NO	99	99	2.5

ARTEMISIA TRIPARTITA/FESTUCA IDAHOENSIS

TYPE NO: 10

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	R	S
91RD 35	CENTENNIAL SANDHILLS WEST #1	BEAVERHEAD	13S	2W	22 NENW
91RD 40	SNOWSHOE CREEK	BEAVERHEAD	13S	1W	18 NWNE

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 35	DUNE	RULR	RINR	R	220	3	6700	SA	WE	30	0	0	40	1	1	30	0
91RD 40	RHYO	RUDR	RIWR	R	120	7	6970	SA	NO	10	1	0	60	1	0	30	0

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	FI	FRAGS MIN	MAX	EFFER ST	VI	AWHC
91RD 35	TYPIC USTIPSAMMENT	VD	S	LS	NO	NO	99	99	2.5
91RD 40	TYPIC HAPLOBOROLL	DE	SL	SL	NO	NO	99	99	5.0

ATRIPLEX NUTTALLII/ORYZOPSIS HYMENOIDES

TYPE NO: 11

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	R	S
91RD 46	BUHRER GULCH	MADISON	4S	8W	28 SWNE

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 46	SILT	BLDR	SLMS	P	220	60	5120	UP	GE	60	30	10	1	1	0	1	0

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	FI	FRAGS MIN	MAX	EFFER ST	VI	AWHC
91RD 46	LITHIC USTIC TORRIORTHENT	VS	SICL	SICL	NO	VG	99	99	1.4

CERCOCARPUS LEDIFOLIUS/AGROPYRON SPICATUM

TYPE NO: 12

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	LEGAL R	LEGAL S
91RD 28	BIG SHEEP CREEK SLIDE CENTRAL	BEAVERHEAD	15S	10W	10 NWSE
91RD 30	BIG SHEEP CREEK SLIDE NORTHWEST	BEAVERHEAD	15S	10W	10 NWNE
91RD 31	BIG SHEEP CREEK SLIDE SUMMIT	BEAVERHEAD	15S	10W	10 NWNE

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 28	LIME	MWLS	SLMS	P	150	60	7220	UP	SL	10	50	20	10	1	0	10	0
91RD 30	LIME	MWLS	SLMS	P	240	50	7540	UP	SL	10	30	20	30	1	1	10	0
91RD 31	LIME	MWLS	SLUS	P	190	45	7860	UP	SL	20	20	10	30	1	1	20	0

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	TEXTURE FI	FRAGS MIN	FRAGS MAX	EFFER ST	EFFER VI	AWHC
91RD 28	LITHIC USTORTHENT	SH	L	L	VG	VG	99	0	1.8
91RD 30	LITHIC USTORTHENT	SH	L	L	VG	VC	99	0	1.8
91RD 31	TYPIC USTORTHENT	MO	L	L	GR	VC	99	0	2.3

CERCOCARPUS LEDIFOLIUS/FESTUCA IDAHOENSIS

TYPE NO: 13

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	LEGAL R	LEGAL S
91RD 23	CHARCOAL CREEK WATER TANK	SILVER BOW	1S	10W	12 NWNW

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 23	GRAN	RMDC	SLMS	R	140	45	6180	SA	SE	3	3	40	20	1	1	30	0

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	TEXTURE FI	FRAGS MIN	FRAGS MAX	EFFER ST	EFFER VI	AWHC
91RD 23	TYPIC USTORTHENT	MO	LS	SL	NO	VC	99	99	2.3

AGROPYRON DASYSTACHYUM/PHACELIA HASTATA

TYPE NO: 14

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	R	S
91RD 36	CENTENNIAL SANDHILLS WEST #2	BEAVERHEAD	13S	2W	22 NENW
91RD 37	CENTENNIAL SANDHILLS WEST #3	BEAVERHEAD	13S	2W	22 SENE
91RD 38	CENTENNIAL SANDHILLS EAST #1	BEAVERHEAD	13S	1W	19 SENW

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 36	DUNE	RUMR	SLSS	D	140	25	6690	UP	WE	60	0	0	20	1	0	20	0
91RD 37	DUNE	RULR	SLLS	D	0	0	6690	UP	WE	60	0	0	20	0	0	20	0
91RD 38	DUNE	RUMR	SLSS	D	310	40	6680	UP	WE	90	0	0	3	1	0	10	0

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	FI	FRAGS MIN	MAX	EFFER ST	VI	AWHC
91RD 36	USTIC TORRIPSAMMENT	VD	S	S	NO	NO	99	99	2.5
91RD 37	USTIC TORRIPSAMMENT	VD	S	S	NO	NO	99	99	2.5
91RD 38	USTIC TORRIPSAMMENT	VD	S	S	NO	NO	99	99	2.5

AGROPYRON SPICATUM/ORYZOPSIS HYMENOIDES

TYPE NO: 15

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	R	S
91RD 1	BLOCK MOUNTAIN BADLANDS	MADISON	4S	8W	26 NENE
91RD 45	SANDY HOLLOW	MADISON	4S	8W	22 SESE

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 1	SAND	BLSH	SLMS	U	190	55	5480	UP	RE	70	20	10	1	0	0	3	0
91RD 45	CASH	BLSB	SLMS	R	110	55	5540	UP	SE	20	60	20	1	0	0	3	0

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	FI	FRAGS MIN	MAX	EFFER ST	VI	AWHC
91RD 1	LITHIC USTIC TORRIORTHENT	SH	S	SL	NO	GR	0	99	2.0
91RD 45	LITHIC USTIC TORRIORTHENT	SH	L	L	GR	VG	99	0	1.8

PICEA/EQUISETUM ARVENSE

TYPE NO: 16

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	R	S
91RD 43	UPPER RED ROCK LAKE	BEAVERHEAD	14S	1W	22 SESE

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 43	MIAL	ACAB	WVTE	P	350	3	6620	SA	NO	1	0	0	40	10	20	30	0

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	FI	FRAGS MIN	MAX	EFFER ST	VI	AWHC
91RD 43	HISTIC CRYAQUOLL	VD	L	L	NO	NO	99	99	10.0

POPULUS TRICHOCARPA/CORNUS STOLONIFERA

TYPE NO: 17

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	R	S
91RD 47	HAHNKAMP ISLAND SOUTH #1	BEAVERHEAD	3S	9W	2 NWSE
91RD 48	MAIDEN EXCLOSURE SOUTHEAST	BEAVERHEAD	1S	9W	32 SESE

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 47	GRAL	ACFP	WVFP	P	0		5150	SA	SE	10	1	0	40	20	1	30	0
91RD 48	GRAL	ACFP	WVFP	P	310		5325	SA	SE	1	0	0	50	20	0	30	0

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	FI	FRAGS MIN	MAX	EFFER ST	VI	AWHC
91RD 47	TYPIC UDIFLUVENT	VD	SL	L	NO	NO	99	99	9.1
91RD 48	TYPIC UDIFLUVENT	VD	S	SL	GR	VC	99	99	1.2

SALIX EXIGUA

TYPE NO: 18

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	R	S
91RD 49	MAIDEN EXCLOSURE NORTHEAST	BEAVERHEAD	1S	9W	32 SENE

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 49	GRAL	ACFP	WVSC	P	60	2	5320	UP	SE	20	3	10	40	10	1	20	0

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	FI	FRAGS MIN	MAX	EFFER ST	VI	AWHC
91RD 49	AQUIC UDIFLUVENT	VD	S	S	GR	VC	99	99	0.7

AGROPYRON SMITHII

TYPE NO: 19

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	R	S
91RD 52	HAHNKAMP ISLAND CENTRAL	BEAVERHEAD	2S	9W	35 SWSW

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 52	SAAL	ACFP	WVFP	D	290	1	5155	SA	SE	10	0	0	50	0	0	40	0

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	FI	FRAGS MIN	MAX	EFFER ST	VI	AWHC
91RD 52	USTIC TORRIFLUVENT	VD	SL	L	NO	NO	99	99	6.8

ELYMUS CINEREUS

TYPE NO: 20

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	R	S
91RD 50	MAIDEN EXCLOSURE NORTHWEST	BEAVERHEAD	1S	9W	32 SENE

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 50	GRAL	ACTE	WVTE	S	50	2	5325	SA	SE	1	0	0	60	0	1	40	0

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	FI	FRAGS MIN	MAX	EFFER ST	VI	AWHC
91RD 50	FLUVENTIC HAPLOBOROLL	VD	L	L	NO	NO	23	99	10.0

PHALARIS ARUNDINACEA

TYPE NO: 21

LOCATION CHARACTERISTICS

PLOT NO.	SITE NAME	COUNTY	LEGAL T	R	S
91RD 51	HAHNKAMP ISLAND SOUTH #2	BEAVERHEAD	3S	9W	2 NWSE

ENVIRONMENTAL CHARACTERISTICS

PLOT NO.	PM	LF	PP	SS	ASP	%	ELEV	EP	ET	% COVER S	G	R	L	W	M	BV	O
91RD 51	GRAL	ACFP	WVSB	P	0	0	5145	SA	TD	20	0	0	30	0	0	50	0

SOIL CHARACTERISTICS

PLOT NO.	SUBGROUP	DEPTH	TEXTURE CO	FI	FRAGS MIN	MAX	EFFER ST	VI	AWHC
91RD 51	TYPIC FLUVAQENT	VD	LS	L	NO	CO	99	99	4.6

APPENDIX G

ELEMENT OCCURRENCE RECORDS FOR SAMPLE PLOTS

Scientific Name: AGROPYRON DASYSTACHYUM/PHACELIA HASTATA PA
Common Name: THICKSPIKE WHEATGRASS/SILVERLEAF PHACELIA ASSOCIATION

Global rank: G2? Forest Service status:
State rank: S2? Federal Status:

Element occurrence code: C5B2CAMBA0.001

Survey site name: CENTENNIAL SANDHILLS WEST #2
EO rank: B
EO rank comments: CATTLE APPARENTLY HAVE DEGRADED THE SITE SOMEWHAT.

County: BEAVERHEAD

USGS quadrangle: LOWER RED ROCK LAKE

Township: 013S Range: 002W Section: 22 Precision: S
Township-range comments: NW4NE4

Survey date: 1991-07-23 Elevation: 6690
First observation: 1991 Slope/aspect: 25% / SOUTHEAST
Last observation: 1991-07-23 Size (acres): 1

Location:
FROM MONIDA, PROCEED EAST ON MAIN GRAVEL ROAD CA. 10 MILES TO A DIRT ROAD LEADING NORTH. TAKE THIS ROAD 3 MILES TO A T INTERSECTION. STAY ON THE MOST PROMINENT ROAD LEADING EAST FOR 16.5 MILES TO A Y INTERSECTION. TAKE LEFT-HAND ROAD AT Y AND PROCEED CA. 0.85 MILE TO A FENCE. PLOT IS CA. 0.3 MILE ESE.

Element occurrence data:
WITHIN PLOT, 20 SPECIES OBSERVED. DOMINANTS INCLUDE: AGROPYRON DASYSTACHYUM (10% CANOPY COVER), ORYZOPSIS HYMENOIDES (10%), STIPA COMATA (20%), PHACELIA HASTATA (3%), AND PSORALEA TENUIFLORA (30%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
ROLLING UPLAND; PLOT POSITION IS SHORT SLOPE. SAND DUNES PARENT MATERIAL AND USTIC TORRIPSAMMENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (60%), TOTAL COARSE FRAGMENTS (0%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD036. SURVEY CONDUCTED BY R. L. DEVELICE. CRYPTANTHA

FENDLERI AND ERIOGONUM OVALIFOLIUM VAR. CELSUM PRESENT ON SITE.

Information source:
DEVELICE, ROBERT L. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: AGROPYRON DASYSTACHYUM/PHACELIA HASTATA PA
Common Name: THICKSPIKE WHEATGRASS/SILVERLEAF PHACELIA ASSOCIATION

Global rank: G2? Forest Service status:
State rank: S2? Federal Status:

Element occurrence code: C5B2CAMBA0.002

Survey site name: CENTENNIAL SANDHILLS WEST #3
EO rank: B
EO rank comments: CATTLE HAVE APPARENTLY DEGRADED THE SITE SOMEWHAT.

County: BEAVERHEAD

USGS quadrangle: LOWER RED ROCK LAKE

Township: 013S Range: 002W Section: 22 Precision: S
Township-range comments: NE4SE4

Survey date: 1991-07-23 Elevation: 6690
First observation: 1991 Slope/aspect: LEVEL
Last observation: 1991-07-23 Size (acres): 1

Location:
FROM MONIDA, PROCEED EAST ON MAIN GRAVEL ROAD CA. 10 MILES TO A DIRT ROAD LEADING NORTH. TAKE THIS ROAD 3 MILES TO A T INTERSECTION. STAY ON THE MOST PROMINENT ROAD LEADING EAST FOR 16.5 MILES TO A Y INTERSECTION. TAKE LEFT-HAND ROAD AT Y AND PROCEED CA. 0.85 MILE TO A FENCE. PLOT IS CA. 0.55 MILE SOUTHEAST.

Element occurrence data:
WITHIN PLOT, 22 SPECIES OBSERVED. DOMINANTS INCLUDE: AGROPYRON DASYSTACHYUM (20% CANOPY COVER), STIPA COMATA (20%), LINUM PERENNE (20%), PHACELIA HASTATA (3%), AND PSORALEA TENUILORA (10%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
ROLLING UPLANT; PLOT POSITION IS LOWER SLOPE. SAND DUNES PARENT MATERIAL AND USTIC TORRIPSAMMENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (60%), TOTAL COARSE FRAGMENTS (0%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD037. SURVEY CONDUCTED BY R. L. DEVELICE. ASTRAGALUS CERAMICUS VAR. APUS AND ERIOGONUM OVALIFOLIUM VAR. CELSUM PRESENT ON SITE.

Information source:
DEVELICE, ROBERT L. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: AGROPYRON DASYSTACHYUM/PHACELIA HASTATA PA
Common Name: THICKSPIKE WHEATGRASS/SILVERLEAF PHACELIA ASSOCIATION

Global rank: G2? Forest Service status:
State rank: S2? Federal Status:

El t occurrence code: C5B2CAMBA0.003

Survey site name: CENTENNIAL SANDHILLS - EAST #1
EO rank: BC
EO rank comments: SITE HAS APPARENTLY BEEN DEGRADED BY CATTLE GRAZING.

County: BEAVERHEAD

USGS quadrangle: LOWER RED ROCK LAKE

Township: 013S Range: 001W Section: 19 Precision: S
Township-range comments: NW4SE4

Survey date: 1991-07-24 Elevation: 6680
F st observation: 1991 Slope/aspect: 40% / NORTHWEST
L st observation: 1991-07-24 Size (acres): 1

Location:
FROM MONIDA, PROCEED EAST ON MAIN GRAVEL ROAD CA. 10 MILES TO A DIRT ROAD LEADING NORTH. TAKE THIS ROAD 3 MILES TO A T INTERSECTION. STAY ON THE MOST PROMINENT ROAD LEADING EAST FOR 16.5 MILES TO A Y INTERSECTION. TAKE A RIGHT AT THE Y AND PROCEED SOUTH AND EAST CA. 4.5 MILES TO A JEEP ROAD LEADING NORTH. PARK. PLOT IS 0.5 MILE NNE.

Element occurrence data:
WITHIN PLOT, 23 SPECIES OBSERVED. DOMINANTS INCLUDE: ARTEMISIA TRIDENTATA (10% CANOPY COVER), CHRYSOTHAMNUS NAUSEOSUS (10%), AGROPYRON DASYSTACHYUM (20%), ORYZOPSIS HYMENOIDES (3%), AND PHACELIA HASTATA (1%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
ROLLING UPLAND; PLOT POSITION IS SHORT SLOPE. SAND DUNES PARENT MATERIAL AND USTIC TORRIPSAMMENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (90%), TOTAL COARSE FRAGMENTS (0%).

Land owner/manager:
STATE LAND - UNDESIGNATED

Comments:
MTNHP PLOT # 91RD038. SURVEY CONDUCTED BY R. L. DEVELICE. CRYPTANTHA FENDLERI AND ERIOGONUM OVALIFOLIUM VAR. CELSUM PRESENT ON SITE.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: AGROPYRON SMITHII PA
Common Name: WESTERN WHEATGRASS ASSOCIATION

Global rank: G4 Forest Service status:
State rank: S3 Federal Status:

Element occurrence code: C5B2CBABA0.002

Survey site name: HAHNKAMP ISLAND - CENTRAL
EO rank: C
EO rank comments: INCREASER SPECIES ARE WELL-REPRESENTED AND SUGGEST HEAVY CATTLE USE IN THE PAST.

County: BEAVERHEAD

USGS quadrangle: EARLS GULCH

Township: 002S Range: 009W Section: 35 Precision: S
Township-range comments: SW4SW4

Survey date: 1991-08-21 Elevation: 5155
First observation: 1991 Slope/aspect: 1% / WEST
Last observation: 1991-08-21 Size (acres): 1

Location:
FROM MELROSE, PROCEED SOUTH 0.7 MILE ON THE FRONTAGE ROAD AND PARK. FORD THE BIG HOLE RIVER TO THE ISLAND. THE PLOT IS NEAR THE CENTER OF THE ISLAND, CA. 0.25 MILE TO THE SOUTHWEST.

Element occurrence data:
WITHIN PLOT, 26 SPECIES OBSERVED. DOMINANTS INCLUDE: AGROPYRON SMITHII (60% CANOPY COVER), CAREX STENOPHYLLA (10%), KOELERIA CRISTATA (20%), POA PRATENSIS (10%), AND EQUISETUM HYEMALE (30%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
ALLUVIAL FLOOD PLAIN; PLOT POSITION IS FLOOD PLAIN IN WIDE VALLEY BOTTOM. SANDY ALLUVIUM PARENT MATERIAL AND USTIC TORRIFLUVENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (10%), TOTAL COARSE FRAGMENTS (0%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD052. SURVEY CONDUCTED BY R. L. DEVELICE. NOTE: LAND OWNERSHIP IS BLM, BUT MAY APPEAR AS PRIVATELY-OWNED LAND ON MAPS.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST 6TH AVE., HELENA, MT 59620.

Scientific Name: AGROPYRON SPICATUM-ORYZOPSIS HYMENOIDES PA
Common Name: BLUEBUNCH WHEATGRASS-INDIAN RICEGRASS ASSOCIATION

Global rank: G3? Forest Service status:
State rank: S2? Federal Status:

Element occurrence code: C6A2AAMBA0.001

Survey site name: BLOCK MOUNTAIN BADLAND
EO rank: B
EO rank comments: SOMEWHAT WEEDY, BUT BASICALLY PRISTINE BADLAND SITE.

County: MADISON

USGS quadrangle: BLOCK MOUNTAIN

Township: 004S Range: 008W Section: 26 Precision: S
Township-range comments: NE4NE4

Survey date: 1991-06-03 Elevation: 5480
First observation: 1991 Slope/aspect: 53% / SOUTH
Last observation: 1991-06-03 Size (acres): 1

Location:
FROM GLEN, PROCEED SOUTH ON PAVEMENT CA. 0.75 MILE TO THE BURMA ROAD. TAKE THIS ROAD 7.5 MILES TO SANDY HOLLOW. BLOCK MOUNTAIN IS 1.5 MILES NORTHEAST. PLOT IS LOCATED IN PROMINENT BADLAND, 0.4 MILE SSW OF HIGHEST SUMMIT OF BLOCK MOUNTAIN.

Element occurrence data:
WITHIN PLOT, 15 SPECIES OBSERVED. DOMINANTS INCLUDE: AGROPYRON SPICATUM (TRACE CANOPY COVER), ARISTIDA LONGISETA (3%), ORYZOPSIS HYMENOIDES (10%), GUTIERREZIA SAROTHRAE (1%), AND OPUNTIA POLYACANTHA (1%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
BREAKLAND; PLOT POSITION IS MID-SLOPE. SANDSTONE PARENT MATERIAL AND LITHIC USTIC TORRIORTHENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (70%), TOTAL COARSE FRAGMENTS (30%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD001. SURVEY CONDUCTED BY R. L. DEVELICE, P. ACHUFF, AND A. McALPINE. SITE CHARACTERIZED BY UNSTABLE SUBSTRATE AND HIGH MICRO-SCALE LANDSCAPE DIVERSITY.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST 6TH AVE., HELENA, MT 59620.

Scientific Name: AGROPYRON SPICATUM-ORYZOPSIS HYMENOIDES PA
Common Name: BLUEBUNCH WHEATGRASS-INDIAN RICEGRASS ASSOCIATION

Global rank: G3? Forest Service status:
State rank: S2? Federal Status:

Element occurrence code: C6A2AAMBA0.002

Survey site name: SANDY HOLLOW
EO rank: A
EO rank comments: PRISTINE BADLANDS SITE.

County: MADISON

USGS quadrangle: BLOCK MOUNTAIN

Township: 004S Range: 008W Section: 22 Precision: S
Township-range comments: SE4SE4

Survey date: 1991-07-29 Elevation: 5540
First observation: 1991 Slope/aspect: 55% / EAST
Last observation: 1991-07-29 Size (acres): 1

Location:
FROM GLEN, PROCEED SOUTH ON PAVEMENT CA. 0.75 MILE TO THE BURMA ROAD. TAKE THIS ROAD 7.5 MILES TO SANDY HOLLOW ROAD. TAKE THIS ROAD CA. 2 MILES AND PARK. PLOT IS JUST BELOW RIDGE CREST 0.15 MILE WEST.

Element occurrence data:
WITHIN PLOT, 21 SPECIES OBSERVED. DOMINANTS INCLUDE: ARTEMISIA TRIDENTATA (TRACE CANOPY COVER), ERIOGONUM MICROTHECUM (TRACE), GUTIERREZIA SAROTHRAE (1%), AGROPYRON SPICATUM (3%), AND ORYZOPSIS HYMENOIDES (10%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
BREAKLAND; PLOT POSITION IS MID-SLOPE. CALCAREOUS SHALE PARENT MATERIAL AND LITHIC USTIC TORRIORTHENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (20%), TOTAL COARSE FRAGMENTS (80%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD045. SURVEY CONDUCTED BY R. L. DEVELICE.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST 6TH AVE., HELENA, MT 59620.

Scientific Name: ARTEMISIA ARBUSCULA/AGROPYRON SPICATUM PA
Common Name: LOW SAGE/BLUEBUNCH WHEATGRASS ASSOCIATION

Global rank: G4G5 Forest Service status:
State rank: S3S4 Federal Status:

Element occurrence code: C5B2BBABA0.001

Survey site name: BIG SHEEP CREEK SLIDE - SOUTHWEST
EO rank: A
EO rank comments: PRISTINE SITE

County: BEAVERHEAD

USGS quadrangle: CABOOSE CANYON

Township: 015S Range: 010W Section: 10 Precision: S
Township-range comments: NW4NW4

Survey date: 1991-07-10 Elevation: 7080
First observation: 1991 Slope/aspect: 55% / WSW
Last observation: 1991-07-10 Size (acres): 10

Location:
FROM DELL, PROCEED SOUTH ALONG INTERSTATE 15 FRONTAGE ROAD FOLLOWING THE BIG SHEEP CREEK SIGNS. CONTINUE 1.7 MILES TO A T INTERSECTION AND TAKE THE FORK LEADING SOUTHWEST. PROCEED 8 MILES TO A Y INTERSECTION AND TAKE THE ROAD LEADING SOUTH. PORCEED 7. MILES AND PARK. PLOT IS CA. 0.55 MILE WNW.

Element occurrence data:
WITHIN PLOT, 16 SPECIES OBSERVED. DOMINANTS INCLUDE: ARTEMISIA ARBUSCULA (40% CANOPY COVER), ARTEMISIA FRIGIDA (10%), CHRYSOTHAMNUS NAUSEOSUS (3%), AGROPYRON SPICATUM (40%), AND ARENARIA KINGII (1%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
MASS WASTED SLOPE; PLOT POSITION IS MID-SLOPE. LIMESTONE PARENT MATERIAL AND TYPIC USTORTHENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (20%), TOTAL COARSE FRAGMENTS (40%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD029. SURVEY CONDUCTED BY R. L. DEVELICE. ARENARIA KINGII PRESENT ON SITE.

Information source:
DEVELICE, ROBERT L. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: ARTEMISIA TRIDENTATA/AGROPYRON SPICATUM PA
Common Name: BIG SAGEBUSH/BLUEBUNCH WHEATGRASS ASSOCIATION

Global rank: G5 Forest Service status:
State rank: S5 Federal Status:

Element occurrence code: C3A2BCACA0.019

Survey site name: BLOCK MOUNTAIN - CENTER
EO rank: AB
EO rank comments: PRISTINE EXAMPLE OF A COMMON COMMUNITY.

County: MADISON

USGS quadrangle: BLOCK MOUNTAIN

Township: 004S Range: 008W Section: 23 Precision: S
Township-range comments: SE4,26NE4NE4

Survey date: 1991-06-03 Elevation: 5990
First observation: 1991 Slope/aspect: 0% / NORTH
Last observation: 1991-06-03 Size (acres): 5

Location:
FROM GLEN, PROCEED SOUTH ON PAVEMENT CA. 0.75 MILE TO THE BURMA ROAD. TAKE THIS ROAD 7.5 MILES TO SANDY HOLLOW. BLOCK MOUNTAIN IS 1.5 MILES NORTHEAST. PLOT IS LOCATED ON BROAD, FLAT SUMMIT RIDGE, 0.15 MILE SOUTH OF THE HIGHEST SUMMIT OF BLOCK MOUNTAIN.

Element occurrence data:
WITHIN PLOT, 18 SPECIES OBSERVED. DOMINANTS INCLUDE: ARTEMISIA TRIDENTATA (30% CANOPY COVER), ARTEMISIA FRIGIDA (10%), AGROPYRON SPICATUM (20%), BOUTELOUA GRACILIS (5%), AND ORYZOPSIS HYMENOIDES (3%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
STRUCTURALLY CONTROLLED MOUNTAIN SLOPE; PLOT POSITION IS WIDE RIDGE SUMMIT. BASALT PARENT MATERIAL AND BOROLLIC LITHIC CALCIORTHID SOIL SUBGROUP. GROUND COVER: BARE SOIL (10%), TOTAL COARSE FRAGMENTS (40%).

Land owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD003. SURVEY CONDUCTED BY R. L. DEVELICE, P. ACHUFF AND A. McALPINE. ADDITIONAL PLOTS OF THIS COMMUNITY TYPE WERE SAMPLED AT THE SITE, INCLUDING PLOT #91RD005, LOCATED CA. 0.3 MILE NORTH, AND PLOT #91RD002, LOCATED CA. 0.12 MILE SOUTHWEST.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST 6TH AVE., HELENA, MT 59620.

Scientific Name: ARTEMISIA TRIDENTATA/AGROPYRON SPICATUM PA
Common Name: BIG SAGEBUSH/BLUEBUNCH WHEATGRASS ASSOCIATION

Global rank: G5 Forest Service status:
State rank: S5 Federal Status:

Element occurrence code: C3A2BCACA0.020

Survey site name: HOGBACK SODAK MINE ROAD
EO rank: BC
EO rank comments: SURROUNDED BY HEAVILY-GRAZED GRASSLANDS. CATTLE USE HAS APPARENTLY DEGRADED SITE.

County: BEAVERHEAD

USGS quadrangle: BLOCK MOUNTAIN

Township: 005S Range: 008W Section: 09 Precision: S
Township-range comments: SW4SE4

Survey date: 1991-06-05 Elevation: 5320
First observation: 1991 Slope/aspect: 18% / NORTHWEST
Last observation: 1991-06-05 Size (acres): 1

Location:
FROM GLEN, PROCEED SOUTH ON PAVEMENT 7.4 MILES TO GRAVEL CROSSROAD. TAKE THIS GRAVEL ROAD 0.6 MILE EAST TO AN INTERSECTION WITH A SIDE ROAD. TAKE THIS SIDE ROAD 2.3 MILES NORTH AND PARK. PLOT IS ON UPPER SLOPE OF RIDGE, 0.75 MILE DUE EAST.

Element occurrence data:
WITHIN PLOT, 23 SPECIES OBSERVED. DOMINANTS INCLUDE: ARTEMISIA TRIDENTATA (10% CANOPY COVER), ARTEMISIA FRIGIDA (10%), AGROPYRON SPICATUM (20%), BOUTELOUA GRACILIS (30%), AND STIPA COMATA (20%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
STRUCTURALLY CONTROLLED MOUNTAIN SLOPE; PLOT POSITION IS UPPER SLOPE. QUARTZITE PARENT MATERIAL AND BOROLLIC LITHIC CALCIORTHID SOIL SUBGROUP. GROUND COVER: BARE SOIL (1%), TOTAL COARSE FRAGMENTS (40%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD009. SURVEY CONDUCTED BY R. L. DEVELICE AND A. McALPINE.

Information source:
DEVELICE, ROBERT L. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 E. 6TH AVE., HELENA, MT 59620.

Scientific Name: ARTEMISIA TRIDENTATA/AGROPYRON SPICATUM PA
Common Name: BIG SAGEBUSH/BLUEBUNCH WHEATGRASS ASSOCIATION

Global rank: G5 Forest Service status:
State rank: S5 Federal Status:

Element occurrence code: C3A2BCACA0.021

Survey site name: HOGBACK NORTHWEST
EO rank: BC
EO rank comments: THE HIGH COVER OF INCREASER SPECIES SUGGEST DEGRADATION BY GRAZING.

County: BEAVERHEAD

USGS quadrangle: BLOCK MOUNTAIN

Township: 005S Range: 008W Section: 03 Precision: S
Township-range comments: NE4SW4

Survey date: 1991-06-06 Elevation: 5110
First observation: 1991 Slope/aspect: 53% / NORTHWEST
Last observation: 1991-06-06 Size (acres): 10

Location:
FROM GLEN, PROCEED SOUTH ON PAVEMENT 7.4 MILES TO GRAVEL CROSSROAD. TAKE THIS GRAVEL ROAD 0.6 MILE EAST TO AN INTERSECTION WITH A SIDE ROAD. FOLLOW THE SIDE ROAD CA. 3 MILES TO A Y INTERSECTION, GO RIGHT, AND FOLLOW THE MOST PROMINENT ROAD CA. 2 MILES TO THE RIVER. PLOT IS 0.7 MILE DUE EAST.

Element occurrence data:
WITHIN PLOT, 17 SPECIES OBSERVED. DOMINANTS INCLUDE: ARTEMISIA TRIDENTATA (40% CANOPY COVER), ARTEMISIA FRIGIDA (10%), AGROPYRON SPICATUM (30%), POA SANDBERGII (10%), AND STIPA COMATA (3%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
STRUCTURALLY CONTROLLED MOUNTAIN SLOPE; PLOT POSITION IS MID-SLOPE. QUARTZITE PARENT MATERIAL AND LITHIC ARGIBOROLL SOIL SUBGROUP. GROUND COVER: BARE SOIL (3%), TOTAL COARSE FRAGMENTS (40%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD010. SURVEY CONDUCTED BY R. L. DEVELICE AND A. McALPINE.

Information source:
DEVELICE, ROBERT L. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: ARTEMISIA TRIDENTATA/AGROPYRON SPICATUM PA
Common Name: BIG SAGEBUSH/BLUEBUNCH WHEATGRASS ASSOCIATION

Global rank: G5 Forest Service status:
State rank: S5 Federal Status:

Element occurrence code: C3A2BCACA0.023

Survey site name: MOOSE CREEK/CHICKEN CREEK CONFLUENCE
EO rank: BC
EO rank comments: SITE HAS APPARENTLY BEEN DEGRADED BY CATTLE USE.

County: SILVER BOW

USGS quadrangle: MELROSE

Township: 001S Range: 009W Section: 23 Precision: S
Township-range comments: SW4SE4

Survey date: 1991-06-12 Elevation: 5940
First observation: 1991 Slope/aspect: 40% / SOUTHEAST
Last observation: 1991-06-12 Size (acres): 40

Location:
TAKE MOOSE CREEK EXIT (#99) OFF INTERSTATE 15. PROCEED EAST ON MOOSE CREEK ROAD 2.5 MILES AND PARK. PLOT IS UPSLOPE CA. 0.15 MILE DUE WEST.

Element occurrence data:
WITHIN PLOT, 20 SPECIES OBSERVED. DOMINANTS INCLUDE: ARTEMISIA TRIDENTATA (50% CANOPY COVER), ARTEMISIA FRIGIDA (3%), OPUNTIA POLYACANTHA (1%), AGROPYRON SPICATUM (50%), AND STIPA COMATA (20%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
RESIDUAL MOUNTAIN SLOPE; PLOT POSITION IS MID-SLOPE. SCHIST PARENT MATERIAL AND ARIDIC ARGIBOROLL SOIL SUBGROUP. GROUND COVER: BARE SOIL (20%), TOTAL COARSE FRAGMENTS (50%).

Land owner/manager:
BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA
HUMBUG SPIRES PRIMITIVE AREA

Comments:
MTNHP PLOT #91RD018. SURVEY CONDUCTED BY R. L. DEVELICE, J. SANFORD, AND K. HASSIEN.

Information source:
DEVELICE, ROBERT L. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: ARTEMISIA TRIDENTATA/AGROPYRON SPICATUM PA
Common Name: BIG SAGEBUSH/BLUEBUNCH WHEATGRASS ASSOCIATION

Global rank: G5 Forest Service status:
State rank: S5 Federal Status:

Element occurrence code: C3A2BCACA0.024

Survey site name: MAIDEN EXCLOSURE - SOUTHWEST
EO rank: BC
EO rank comments: THE SITE APPEARS TO HAVE BEEN HEAVILY GRAZED PRIOR TO EXCLOSURE ESTABLISHMENT IN 1984, AND CONTAINS CENTAUREA MACULOSA AND BROMUS TECTORUM.

County: BEAVERHEAD

USGS quadrangle: MELROSE

Township: 001S Range: 009W Section: 32 Precision: S
Township-range comments: SW4SE4

Survey date: 1991-06-18 Elevation: 5330
First observation: 1991 Slope/aspect: 2% / NORTH
Last observation: 1991-06-18 Size (acres): 2

Location:
FROM THE MOOSE CREEK ROAD EXIT (#99) ON INTERSTATE 15, PROCEED NORTH AND WEST ON FRONTAGE ROAD 0.5 MILE TO JUNCTION WITH A GRAVEL ROAD. TAKE THIS GRAVEL ROAD SOUTH 1.2 MILES TO A Y INTERSECTION. GO LEFT AND RIGHT CA. 1 MILE TO A BRIDGE CROSSING THE RIVER. CROSS THE BRIDGE. EXCLOSURE IS TO THE RIGHT.

Element occurrence data:
WITHIN PLOT, 28 SPECIES OBSERVED. SOMINANTS INCLUDE: ARTEMISIA TRIDENTATA (20% CANOPY COVER), AGROPYRON SPICATUM (30%), KOELERIA CRISTATA (20%), POA SANDBERGII (10%), AND STIPA COMATA (10%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
ALLUVIAL TERRACE; PLOT POSITION IS TERRACE IN WIDE VALLEY BOTTOM. MIXED ALLUVIUM PARENT MATERIAL AND USTIC TORRIFLUVENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (20%), TOTAL COARSE FRAGMENTS (3%).

Land owner/manager:
BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
MTNHP PLOT #91RD025. SURVEY CONDUCTED BY R. L. DEVELICE. EXCLOSURE ESTABLISHED IN 1984 (PERS. COMM., JACK JONES, BLM, BUTTE). CA. 30% OF THE ARTEMISIA TRIDENTATA PLANTS PRESENT ARE DEAD.

Information source:
DEVELICE, ROBERT L. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS PA
Common Name: BIG SAGEBRUSH/IDAHO FESCUE ASSOCIATION

Global rank: G5 Forest Service status:
State rank: S4 Federal Status:

Element occurrence code: C5B2BGABA0.013

Survey site name: JOHNSON CREEK EXCLOSURE
EO rank: AB
EO rank comments: NOT GRAZED BY LARGE HERBIVORES SINCE 1968. HEAVY CATTLE GRAZING ON ADJACENT LANDS MAY CAUSE INCREASED EROSION AND WEED INFLUX INTO EXCLOSURE.

County: SILVER BOW

USGS quadrangle: DICKIE HILLS

Township: 001N Range: 011W Section: 18 Precision: S
Township-range comments: NW4SW4

Survey date: 1991-06-14 Elevation: 6140
First observation: 1991 Slope/aspect: 15% / SOUTH
Last observation: 1991-06-14 Size (acres): 40

Location:
FROM WISE RIVER (TOWN), PROCEED WEST ALONG STATE HIGHWAY 43 TO THE BIG HOLE RIVER. CA. 0.2 MILE AFTER CROSSING THE RIVER, TURN RIGHT ONTO A GRAVEL ROAD AND CONTINUE 3.5 MILES TO JOHNSON CREEK. TAKE THE FIRST LEFT OFF JOHNSON CREEK ROAD (0.2 MILE FROM RIVER), AND FOLLOW THIS ROAD CA. 1 MILE TO THE EXCLOSURE.

Element occurrence data:
WITHIN PLOT, 12 SPECIES OBSERVED. DOMINANTS INCLUDE: ARTEMISIA TRIDENTATA (30% CANOPY COVER), AGROPYRON SPICATUM (30%), FESTUCA IDAHOENSIS (50%), POA SANDBERGII (1%), AND ARENARIA CONGESTA (3%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
RESIDUAL MOUNTAIN RIDGE; PLOT POSITION IS WIDE RIDGE SUMMIT. QUARTZITE PARENT MATERIAL AND TYPIC ARGIBOROLL SOIL SUBGROUP. GROUND COVER: BARE SOIL (30%), TOTAL COARSE FRAGMENTS (10%).

Land owner/manager:
BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA

Comments:
MTNHP PLOT #91RD022. SURVEY CONDUCTED BY R. L. DEVELICE. EXCLOSURE ESTABLISHED IN 1968 (PERS. COMM., JACK JONES, BLM, BUTTE). APPROXIMATE DIMENSIONS - 45m X 45m X 2.5m.

Information source:
DEVELICE, ROBERT L. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS PA
Common Name: BIG SAGEBRUSH/IDAHO FESCUE ASSOCIATION

Global rank: G5 Forest Service status:
State rank: S4 Federal Status:

Element occurrence code: C5B2BGABA0.014

Survey site name: ELK GULCH MINE SOUTH
EO rank: BC
EO rank comments: CATTLE APPEAR TO HAVE HEAVILY GRAZED AREA IN THE PAST, BUT APPARENTLY HAVE NOT BEEN PRESENT ON SITE FOR AT LEAST TWO YEARS.

County: BEAVERHEAD

USGS quadrangle: ELK GULCH

Township: 009S Range: 007W Section: 02 Precision: S
Township-range comments: NE4SW4

Survey date: 1991-07-11 Elevation: 7500
First observation: 1991 Slope/aspect: 30% / SOUTHEAST
Last observation: 1991-07-11 Size (acres): 1

Location:
FROM THE CEMETERY IN DILLON (1 MILE EAST OF TOWN), PROCEED ON GRAVEL SWEETWATER ROAD 14 MILES EAST TO A DIRT ROAD AND GATE ON SOUTH SIDE OF SWEETWATER ROAD. GO THROUGH GATE AND FOLLOW DIRT ROAD 6.5 MILES TO A JEEP TRAIL ON A FORESTED RIDGE. TAKE THIS TRAIL 0.4 MILE SOUTH AND PARK. PLOT IS CA. 0.2 MILE DUE SOUTH.

Element occurrence data:
WITHIN PLOT, 31 SPECIES OBSERVED. DOMINANTS INCLUDE: ARTEMISIA TRIDENTATA (10% CANOPY COVER), AGROPYRON SPICATUM (20%), FESTUCA IDAHOENSIS (20%), POA SANDBERGII (3%), AND HAPLOPAPPUS ACAULIS (20%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
RESIDUAL MOUNTAIN SLOPE; PLOT POSITION IS MID-SLOPE. PERIDOTITE PARENT MATERIAL AND LITHIC ARGIBOROLL SOIL SUBGROUP. GROUND COVER: BARE SOIL (30%), TOTAL COARSE FRAGMENTS (30%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD032. SURVEY CONDUCTED BY R. L. DEVELICE. SITE MAPPED IN 1970 AS HAVING GREATER THAN 1000 PPM NICKEL CONTENT (MAP COMPILED BY K. STOUT, BUTTE). THE RELATIVE SPARSENESS OF THE VEGETATION RELATIVE TO ADJACENT SITES (E.G., PLOT #91RD033, WITH 100-400 PPM NICKEL) MAY REFLECT THESE HIGH NICKEL VALUES.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST 6TH AVE., HELENA, MT 59620.

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Scientific Name: ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS PA
Common Name: BIG SAGEBRUSH/IDAHO FESCUE ASSOCIATION

Global rank: G5 Forest Service status:
State rank: S4 Federal Status:

Element occurrence code: C5B2BGABA0.015

Survey site name: CENTENNIAL SANDHILLS - EAST #2
EO rank: BC
EO rank comments: SITE HAS APPARENTLY BEEN DEGRADED BY CATTLE GRAZING.

County: BEAVERHEAD

USGS quadrangle: LOWER RED ROCK LAKE

Township: 013S Range: 001W Section: 19 Precision: S
Township-range comments: NW4SE4

Survey date: 1991-07-24 Elevation: 6680
First observation: 1991 Slope/aspect: 1% / EAST
Last observation: 1991-07-24 Size (acres): 320

Location:
FROM MONIDA, PROCEED EAST ON MAIN GRAVEL ROAD CA. 10 MILES TO A DIRT ROAD LEADING NORTH. TAKE THIS ROAD 3 MILES TO A T INTERSECTION. STAY ON THE MOST PROMINENT ROAD LEADING EAST FOR 16.5 MILES TO A Y INTERSECTION. TAKE A RIGHT AT THE Y AND PROCEED SOUTH AND EAST CA. 4.5 MILES TO A JEEP ROAD LEADING NORTH. PARK. PLOT IS 0.5 MILE NNE.

Element occurrence data:
WITHIN PLOT, 27 SPECIES OBSERVED. DOMINANTS INCLUDE: ARTEMISIA TRIDENTATA (30% CANOPY COVER), CHRYSOTHAMNUS NAUSEOSUS (3%), FESTUCA IDAHOENSIS (40%), KOELERIA CRISTATA (3%), AND STIPA COMATA (30%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
ROLLING UPLAND; PLOT POSITION IS MID-SLOPE. SAND DUNES PARENT MATERIAL AND TYPIC USTIPSAMMENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (40%), TOTAL COARSE FRAGMENTS (0%).

Land owner/manager:
STATE LAND - UNDESIGNATED

Comments:
MTNHP PLOT #91RD039. SURVEY CONDUCTED BY R. L. DEVELICE. CA. 50% OF THE ARTEMISIA TRIDENTATA STEMS PRESENT ARE DEAD. MOST OF THE LIVING A. TRIDENTATA HAVE NUMEROUS DEAD BRANCHES. ERIOGONUM OVALIFOLIUM VAR. CELSUM PRESENT ON SITE.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: ARTEMISIA TRIPARTITA/FESTUCA IDAHOENSIS PA
Common Name: THREETIP SAGEBRUSH/IDAHO FESCUE ASSOCIATION

Global rank: G5 Forest Service status:
State rank: S3 Federal Status:

Element occurrence code: C5B2BHABA0.004

Survey site name: CENTENNIAL SANDHILLS WEST #1
EO rank: B
EO rank comments: DISTURBED BY CATTLE, BUT BASICALLY A SITE IN GOOD CONDITION.

County: BEAVERHEAD

USGS quadrangle: LOWER RED ROCK LAKE

Township: 013S Range: 002W Section: 22 Precision: S
Township-range comments: NW4NE4

Survey date: 1991-07-23 Elevation: 6700
First observation: 1991 Slope/aspect: 3% / SOUTHWEST
Last observation: 1991-07-23 Size (acres): 160

Location:
FROM MONIDA, PROCEED EAST ON MAIN GRAVEL ROAD CA. 10 MILES TO A DIRT ROAD LEADING NORTH. TAKE THIS ROAD 3 MILES TO A T INTERSECTION. STAY ON THE MOST PROMINENT ROAD LEADING EAST FOR 16.5 MILES TO A Y INTERSECTION. TAKE LEFT-HAND ROAD AT Y AND PROCEED CA. 0.85 MILE TO A FENCE. PLOT IS ON KNOLL CA. 0.15 MILE SOUTHEAST.

Element occurrence data:
WITHIN PLOT, 23 SPECIES OBSERVED. DOMINANTS INCLUDE: ARTEMISIA TRIPARTITA (30% CANOPY COVER), TETRADYMIA CANESCENS (3%), FESTUCA IDAHOENSIS (50%), STIPA COMATA (30%), AND LUPINUS ARGENTEUS (10%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
ROLLING UPLAND; PLOT POSITION IS NARROW RIDGE. SAND DUNES PARENT MATERIAL AND TYPIC USTIPSAMMENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (30%), TOTAL COARSE FRAGMENTS (0%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD035. SURVEY CONDUCTED BY R. L. DEVELICE, J. WARD, AND L. WARD-DEVELICE. ERIOGONUM OVALIFOLIUM VAR. CELSUM PRESENT ON SITE.

Information source:
DEVELICE, ROBERT L. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: ARTEMISIA TRIPARTITA/FESTUCA IDAHOENSIS PA
Common Name: THREETIP SAGEBRUSH/IDAHO FESCUE ASSOCIATION

Global rank: G5 Forest Service status:
State rank: S3 Federal Status:

Element occurrence code: C5B2BHABA0.005

Survey site name: SHOWSHOE CREEK
EO rank: BC
EO rank comments: SITE HAS APPARENTLY BEEN DEGRADED BY CATTLE GRAZING.

County: BEAVERHEAD

USGS quadrangle: LOWER RED ROCK LAKE

Township: 013S Range: 001W Section: 18 Precision: S
Township-range comments: NE4NW4

Survey date: 1991-07-24 Elevation: 6970
First observation: 1991 Slope/aspect: 7% / SOUTHEAST
Last observation: 1991-07-24 Size (acres): 40

Location:
FROM MONIDA, PROCEED EAST ON MAIN GRAVEL ROAD CA 10 MILES TO A DIRT ROAD LEADING NORTH. TAKE THIS ROAD 3 MILES TO A T INTERSECTION. STAY ON THE MOST PROMINENT ROAD LEADING EAST FOR CA. 21 MILES TO A JEEP ROAD LEADING NORTH. PARK. HIKE NNW 1.8 MILES TO THE PLOT.

Element occurrence data:
WITHIN PLOT, 22 SPECIES OBSERVED. DOMINANTS INCLUDE: ARTEMISIA TRIPARTITA (10% CANOPY COVER), CHRYSOTHAMNUS VISCIDIFLORUS (20%), TETRADYMIA CANESCENS (20%), FESTUCA IDAHOENSIS (30%), AND STIPA COMATA (50%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
ROLLING UPLAND; PLOT POSITION IS WIDE RIDGE SUMMIT. RHYOLITE PARENT MATERIAL AND TYPIC HAPLOBOROLL SOIL SUBGROUP. GROUND COVER: BARE SOIL (10%), TOTAL COARSE FRAGMENTS (TRACE).

Land owner/manager:
STATE LAND - UNDESIGNATED

Comments:
MTNHP PLOT #91RD040. SURVEY CONDUCTED BY R. L. DEVELICE.

Information source:
DEVELICE, ROBERT L. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: ATRIPLEX NUTTALLII-ORYZOPSIS HYMENOIDES PA
Common Name: NUTTALL SALTBRUSH-INDIAN RICEGRASS ASSOCIATION

Global rank: G3G4 Forest Service status:
State rank: S2? Federal Status:

Element occurrence code: C4C1BBADA0.001

Survey site name: BUHRER GULCH
EO rank: B
EO rank comments: SOMEWHAT DEGRADED BY CATTLE MOVEMENT ACROSS BADLANDS.

County: MADISON

USGS quadrangle: BLOCK MOUNTAIN

Township: 004S Range: 008W Section: 28 Precision: S
Township-range comments: NE4SW4

Survey date: 1991-07-30 Elevation: 5120
First observation: 1991 Slope/aspect: 60% / SOUTHWEST
Last observation: 1991-07-30 Size (acres): 1

Location:
FROM GLEN, PROCEED SOUTH ON PAVEMENT CA. 0.75 MILE TO THE BURMA ROAD. TAKE THIS ROAD 4.5 MILES AND PARK. THE PLOT IS IN THE PROMINENT BADLANDS 0.4 MILE DUE NORTH.

Element occurrence data:
WITHIN PLOT, 13 SPECIES OBSERVED. DOMINANTS INCLUDE: ATRIPLEX NUTTALLII (1% CANOPY COVER), CHRYSOTHAMNUS NAUSEOSUS (3%), ERIOGONUM MICROTHECUM (TRACE), ORYZOPSIS HYMENOIDES (TRACE), AND SITANION HYSTRIX (TRACE). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
BREAKLAND; PLOT POSITION IS MID-SLOPE. SILTSTONE PARENT MATERIAL AND LITHIC USTIC TORRIORTHENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (60%), TOTAL COARSE FRAGMENTS (40%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD046. SURVEY CONDUCTED BY R. L. DEVELICE.

Information source:
DEVELICE, ROBERT [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: CERCOCARPUS LEDIFOLIUS/AGROPYRON SPICATUM PA
Common Name: CURL-LEAF MOUNTAIN MAHOGANY/BLUEBUNCH WHEATGRASS ASSOCIATION

Global rank: G5 Forest Service status:
State rank: S4 Federal Status:

Element occurrence code: C3B4AHABA0.003

Survey site name: BIG SHEEP CREEK SLIDE - SUMMIT
EO rank: AB
EO rank comments: MODERATE TO HEAVY DEER BROWSING, BUT SITE IS BASICALLY PRISTINE.

County: BEAVERHEAD

USGS quadrangle: CABOOSE CANYON

Township: 015S Range: 010W Section: 10 Precision: S
Township-range comments: NE4NW4

Survey date: 1991-07-10 Elevation: 7860
First observation: 1991 Slope/aspect: 45% / SOUTH
Last observation: 1991-07-10 Size (acres): 5

Location:
FROM DELL, PROCEED SOUTH ALONG INTERSTATE 15 FRONTAGE ROAD FOLLOWING THE BIG SHEEP CREEK SIGNS. CONTINUE 1.7 MILES TO A T INTERSECTION AND TAKE THE FORK LEADING SOUTHWEST. PROCEED 8 MILES TO A Y INTERSECTION AND TAKE THE ROAD LEADING SOUTH. PROCEED 7.5 MILES AND PARK. PLOT IS CA. 0.45 MILE NORTHWEST, 0.1 MILE SOUTHWEST OF SUMMIT.

Element occurrence data:
WITHIN PLOT, 19 SPECIES OBSERVED. DOMINANTS INCLUDE: CERCOCARPUS LEDIFOLIUS (30% CANOPY COVER), ARTEMISIA ARBUSCULA (10%), CHRYSOTHAMNUS VISCIDIFLORUS (3%), AGROPYRON SPICATUM (20%), AND CAREX ROSSII (3%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
MASS WASTED SLOPE; PLOT POSITION IS UPPER SLOPE. LIMESTONE PARENT MATERIAL AND TYPIC USTORTHENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (20%), TOTAL COARSE FRAGMENTS (30%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD031. SURVEY CONDUCTED BY R. L. DEVELICE. ARENARIA KINGII PRESENT ON SITE. ADDITIONAL PLOTS OF THIS TYPE ESTABLISHED CA. 0.25 MILE SOUTHEAST OF SITE (#91RD028), AND CA. 0.12 MILE SOUTHWEST (#91RD030).

Information source:
DEVELICE, ROBERT L. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: CERCOCARPUS LEDIFOLIUS/FESTUCA IDAHOENSIS PA
Common Name: CURL-LEAF MOUNTAIN MAHOGANY/IDAHO FESCUE ASSOCIATION

Global rank: G2? Forest Service status:
State rank: S2? Federal Status:

Element occurrence code: C3B4AHABM0.001

Survey site name: CHARCOAL CREEK WATER TANK
EO rank: BC
EO rank comments: HIGH COVER OF BROMUS TECTORUM SUGGESTS HEAVY GRAZING IN THE PAST. NO RECENT EVIDENCE OF CATTLE USE.

County: SILVER BOW

USGS quadrangle: DEWEY

Township: 001S Range: 010W Section: 12 Precision: S
Township-range comments: NW4NW4

Survey date: 1991-06-17 Elevation: 6180
First observation: 1991 Slope/aspect: 45% / SOUTHEAST
Last observation: 1991-06-17 Size (acres): 1

Location:
FROM DIVIDE, PROCEED WEST ON STATE HIGHWAY 43 1.5 MILES TO A Y IN THE ROAD, JUST BEFORE A BRIDGE ACROSS THE BIG HOLE RIVER. TAKE THE RIGHT-HAND ROAD (DON'T CROSS THE BRIDGE) AND PROCEED 0.6 MILE TO A SMALL TOWNSITE AND DIRT ROAD LEADING NORTH UP CHARCOAL CREEK. TAKE THIS ROAD 1.1 MILES AND PARK. THE SITE IS JUST SOUTH OF WATER TANK, 0.3 MILE TO THE WEST.

Element occurrence data:
WITHIN PLOT, 21 SPECIES OBSERVED. DOMINANTS INCLUDE: CERCOCARPUS LEDIFOLIUS (20% CANOPY COVER), ARTEMISIA TRIDENTATA (3%), AGROPYRON SPICATUM (30%), BROMUS TECTORUM (30%), AND FESTUCA IDAHOENSIS (10%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
RESIDUAL MOUNTAIN SLOPE; PLOT POSITION IS MID-SLOPE. GRANITE PARENT MATERIAL AND TYPIC USTORTHENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (3%), TOTAL COARSE FRAGMENTS (43%).

Land owner/manager:
BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA

Comments:
MTNHP PLOT #91RD023. SURVEY CONDUCTED BY R. L. DEVELICE.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: ELYMUS CINEREUS PA
Common Name: BASIN WILDRYE ASSOCIATION

Global rank: G4 Forest Service status:
State rank: S2? Federal Status:

Element occurrence code: C5B1CFABA0.001

Survey site name: MAIDEN EXCLOSURE - NORTHWEST
EO rank: BC
EO rank comments: SITE APPEARS TO HAVE BEEN HEAVILY GRAZED PRIOR TO EXCLOSURE ESTABLISHMENT IN 1984.

County: BEAVERHEAD

USGS quadrangle: MELROSE

Township: 001S Range: 009W Section: 32 Precision: S
Township-range comments: NE4NE4

Survey date: 1991-08-20 Elevation: 5325
First observation: 1991 Slope/aspect: 2% / NORTHEAST
Last observation: 1991-08-20 Size (acres): 1

Location:
FROM THE MOOSE CREEK ROAD EXIT (#99) ON INTERSTATE 15, PROCEED NORTH AND WEST ON FRONTAGE ROAD 0.5 MILE TO JUNCTION WITH A GRAVEL ROAD. TAKE THIS GRAVEL ROAD SOUTH 1.2 MILES TO A Y INTERSECTION. GO LEFT AND RIGHT CA. 1 MILE TO A BRIDGE CROSSING THE RIVER. CROSS THE BRIDGE. EXCLOSURE IS TO THE RIGHT.

Element occurrence data:
WITHIN PLOT, 12 SPECIES OBSERVED. DOMINANTS INCLUDE: ELYMUS CINEREUS (98% CANOPY COVER), JUNCUS BALTICUS (10%), KOELERIA CRISTATA (1%), MUHLENBERGIA CUSPIDATA (1%), AND POA PRATENSIS (10%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
ALLUVIAL TERRACES; PLOT POSITION IS TERRACE IN WIDE VALLEY BOTTOM. GRAVELLY ALLUVIUM PARENT MATERIAL AND FLUVENTIC HAPLOBOROLL SOIL SUBGROUP. GROUND COVER: BARE SOIL (TRACE), TOTAL COARSE FRAGMENTS (0%).

Land owner/manager:
BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
MTNHP PLOT #91RD050. SURVEY CONDUCTED BY R. L. DEVELICE. EXCLOSURE ESTABLISHED IN 1984 (PERS. COMM., JACK JONES, BLM, BUTTE). SPECIES RICHNESS IS LIKELY LOW DUE TO INTENSE COMPETITION WITH ELYMUS CINEREUS.

Information source:
DEVELICE, ROBERT L. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

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Scientific Name: JUNIPERUS SCOPULORUM-ARTEMISIA TRIDENTATA
Common Name: ROCKY MOUNTAIN JUNIPER-BIG SAGEBRUSH

Global rank: G2? Forest Service status:
State rank: S2? Federal Status:

Element occurrence code: C2A2ABABM0.001

Survey site name: BLOCK MOUNTAIN SUMMIT
EO rank: AB
EO rank comments: PRISTINE SITE.

County: MADISON

USGS quadrangle: BLOCK MOUNTAIN

Township: 004S Range: 008W Section: 23 Precision: S
Township-range comments: E2SE4

Survey date: 1991-06-03 Elevation: 5995
First observation: 1991 Slope/aspect: 9% / SOUTHEAST
Last observation: 1991-06-03 Size (acres): 1

Location:
FROM GLEN, PROCEED SOUTH ON PAVEMENT CA. 0.75 MILE TO THE BURMA ROAD. TAKE THIS ROAD 7.5 MILES TO SANDY HOLLOW. BLOCK MOUNTAIN IS 1.5 MILES NORTHEAST. PLOT IS LOCATED ON THE GENTLY SLOPING, NARROW SUMMIT RIDGE 0.05 MILE SOUTH OF THE HIGHEST SUMMIT OF BLOCK MOUNTAIN.

Element occurrence data:
WITHIN PLOT, 13 SPECIES OBSERVED. DOMINANTS INCLUDE: JUNIPERUS SCOPULORUM (10% CANOPY COVER), ARTEMISIA TRIDENTATA (20%), AGROPYRON SPICATUM (30%), BOUTELOUA GRACILIS (10%), AND STIPA COMATA (20%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
STRUCTURALLY CONTROLLED MOUNTAIN SLOPE; PLOT POSITION IS NARROW RIDGE. BASALT PARENT MATERIAL AND LITHIC USTORTHENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (10%), TOTAL COARSE FRAGMENTS (60%).

Land owner/manager:
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD004. SURVEY CONDUCTED BY R. L. DEVELICE, P. ACHUFF, AND A. McALPINE. CA. 30% OF THE JUNIPERUS SCOPULORUM TREES PRESENT ON SITE ARE DEAD.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST 6TH AVE., HELENA, MT 59620.

Scientific Name: JUNIPERUS SCOPULORUM-ARTEMISIA TRIDENTATA
Common Name: ROCKY MOUNTAIN JUNIPER-BIG SAGEBRUSH

Global rank: G2? Forest Service status:
State rank: S2? Federal Status:

Element occurrence code: C2A2ABABM0.002

Survey site name: SANDY HOLLOW - QUARTZITE RIDGE SOUTH
EO rank: B
EO rank comments: SOME DEGRADATION BY CATTLE, BUT SITE IS RELATIVELY PRISTINE.

County: MADISON

USGS quadrangle: BLOCK MOUNTAIN

Township: 004S Range: 008W Section: 22 Precision: S
Township-range comments: SE4NE4

Survey date: 1991-07-29 Elevation: 5540
First observation: 1991 Slope/aspect: 35% / SOUTH
Last observation: 1991-07-29 Size (acres): 1

Location:
FROM GLEN, PROCEED SOUTH ON PAVEMENT CA 0.75 MILE TO THE BURMA ROAD. TAKE THIS ROAD 7.5 MILES TO SANDY HOLLOW ROAD. TAKE THIS ROAD 3.05 MILES TO CONGLOMERATE DIKE. THE PLOT IS LOCATED ON THE SOUTH SLOPES OF THE RIDGE, 0.1 MILE EAST OF THE ROAD.

Element occurrence data:
WITHIN PLOT, 25 SPECIES OBSERVED. DOMINANTS INCLUDE: JUNIPERUS SCOPULORUM (3% CANOPY COVER), ARTEMISIA TRIDENTATA (10%), AGROPYRON SPICATUM (20%), ORYZOPSIS HYMENOIDES (10%), AND STIPA COMATA (30%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
RESIDUAL MOUNTAIN SLOPE; PLOT POSITION IS SHORT SLOPE. CONGLOMERATE PARENT MATERIAL AND BOROLLIC LITHIC CALCIORTHID SOIL SUBGROUP. GROUND COVER : BARE SOIL (20%), TOTAL COARSE FRAGMENTS (60%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD044. SURVEY CONDUCTED BY R. L. DEVELICE.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST 6TH AVE., HELENA, MT 59620.

Scientific Name: JUNIPERUS SCOPULORUM/CERCOCARPUS LEDIFOLIUS PA
Common Name: ROCKY MOUNTAIN JUNIPER/CURL-LEAF MOUNTAIN MAHOGANY ASSOCIATION

Global rank: G3 Forest Service status:
State rank: S3 Federal Status:

Element occurrence code: C2A2ABABN0.001

Survey site name: HOGBACK SOUTH SUMMIT
EO rank: AB
EO rank comments: PROBABLY BEING BROWSED IN EXCESS OF THE NATURAL RATE BY DEER.

County: BEAVERHEAD

USGS quadrangle: BLOCK MOUNTAIN

Township: 005S Range: 008W Section: 16 Precision: S
Township-range comments: S2SW4

Survey date:	1991-06-05	Elevation:	5880
First observation:	1991	Slope/aspect:	22% / NORTHWEST
Last observation:	1991-06-05	Size (acres):	40

Location:
FROM GLEN, PROCEED SOUTH ON PAVEMENT 7.4 MILES TO GRAVEL CROSSROAD. TAKE THIS GRAVEL ROAD 1.4 MILES EAST TO AN INTERSECTION WITH A SIDE ROAD. TAKE THIS SIDE ROAD 1.2 MILES NORTH AND EAST TO A MICROWAVE STATION. PLOT IS JUST OVER SUMMIT, 0.25 MILE DUE NORTH.

Element occurrence data:
WITHIN PLOT, 31 SPECIES OBSERVED. DOMINANTS INCLUDE: JUNIPERUS SCOPULORUM (10% CANOPY COVER), CERCOCARPUS LEDIFOLIUS (30%), ARTEMISIA TRIDENTATA (10%), AGROPYRON SPICATUM (30%), AND KOELERIA CRISTATA (10%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
STRUCTURALLY CONTROLLED MOUNTAIN SLOPE; PLOT POSITION IS UPPER SLOPE. QUARTZITE PARENT MATERIAL AND LITHIC USTORTHENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (3%), TOTAL COARSE FRAGMENTS (40%).

Land owner/manager:
STATE LAND - UNDESIGNATED

Comments:
MTNHP PLOT #91RD007. SURVEY CONDUCTED BY R. L. DEVELICE, P. ACHUFF, AND A. McALPINE. AN ADDITIONAL PLOT OF THIS COMMUNITY TYPE (#91RD008) WAS SAMPLED CA. 0.12 MILE SOUTHEAST.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST 6TH AVE., HELENA, MT 59620.

Scientific Name: JUNIPERUS SCOPULORUM/CERCOCARPUS LEDIFOLIUS PA
Common Name: ROCKY MOUNTAIN JUNIPER/CURL-LEAF MOUNTAIN MAHOGANY ASSOCIATION

Global rank: G3 Forest Service status:
State rank: S3 Federal Status:

Element occurrence code: C2A2ABABN0.002

Survey site name: HOGBACK CENTRAL RIDGE
EO rank: AB
EO rank comments: PRESENCE OF INCREASER SPECIES IS LIKELY DUE TO A COMBINATION OF HEAVY USE BY DEER AND NATURALLY UNSTABLE SUBSTRATES.

County: BEAVERHEAD

USGS quadrangle: BLOCK MOUNTAIN

Township: 005S Range: 008W Section: 15 Precision: S
Township-range comments: NW4NW4

Survey date: 1991-06-07 Elevation: 5460
First observation: 1991 Slope/aspect: 82% / SOUTHEAST
Last observation: 1991-06-07 Size (acres): 40

Location:
FROM GLEN, PROCEED SOUTH ON PAVEMENT 7.4 MILES TO GRAVEL CROSSROAD. TAKE THIS GRAVEL ROAD 0.6 MILE EAST TO AN INTERSECTION WITH A SIDE ROAD. TAKE THIS SIDE ROAD 2.3 MILES NORTH AND PARK. PLOT IS JUST OVER CREST OF HOGBACK, CA. 1.4 MILES DUE EAST.

Element occurrence data:
WITHIN PLOT, 22 SPECIES OBSERVED. DOMINANTS INCLUDE: JUNIPERUS SCOPULORUM (1% CANOPY COVER), ARTEMISIA FRIGIDA (10%), CERCOCARPUS LEDIFOLIUS (30%), AGROPYRON SPICATUM (3%), AND BOUTELOUA GRACILIS (10%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
RESIDUAL MOUNTAIN SLOPE; PLOT POSITION IS UPPER SLOPE. QUARTZITE PARENT MATERIAL AND LITHIC USTIC TORRIORTHENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (3%), TOTAL COARSE FRAGMENTS (90%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD013. SURVEY CONDUCTED BY R. L. DEVELICE AND A. McALPINE. CA. 10% OF THE CERCOCARPUS LEDIFOLIUS PLANTS PRESENT ARE DEAD.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST 6TH AVE., HELENA, MT 59620.

Scientific Name: JUNIPERUS SCOPULORUM/CERCOCARPUS LEDIFOLIUS PA
Common Name: ROCKY MOUNTAIN JUNIPER/CURL-LEAF MOUNTAIN MAHOGANY ASSOCIATION

Global rank: G3 Forest Service status:
State rank: S3 Federal Status:

Element occurrence code: C2A2ABABN0.003

Survey site name: HOGBACK NORTH RIDGE
EO rank: B
EO rank comments: SITE DOES NOT EXHIBIT EVIDENCE OF CATTLE USE.

County: BEAVERHEAD

USGS quadrangle: BLOCK MOUNTAIN

Township: 005S Range: 008W Section: 02 Precision: S
Township-range comments: W2

Survey date: 1991-06-06 Elevation: 5640
First observation: 1991 Slope/aspect: 31% / WEST
Last observation: 1991-06-06 Size (acres): 1

Location:
FROM GLEN, PROCEED SOUTH ON PAVEMENT 7.4 MILES TO GRAVEL CROSSROAD. TAKE THIS GRAVEL ROAD 0.6 MILE EAST TO AN INTERSECTION WITH A SIDE ROAD. TAKE THIS SIDE ROAD CA. 3 MILES TO A Y INTERSECTION. GO RIGHT AND FOLLOW THE MOST PROMINENT ROAD CA. 2 MILES TO THE RIVER. PLOT IS ON CREST OF HOGBACK, CA. 1.2 MILES ESE.

Element occurrence data:
WITHIN PLOT, 21 SPECIES OBSERVED. DOMINANTS INCLUDE: JUNIPERUS SCOPULORUM (20% CANOPY COVER), CERCOCARPUS LEDIFOLIUS (30%), AGROPYRON SPICATUM (20%), ARISTIDA LONGISETA (10%), AND STIPA COMATA (10%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
STRUCTURALLY CONTROLLED MOUNTAIN SLOPE; PLOT POSITION IS UPPER SLOPE. QUARTZITE PARENT MATERIAL AND TYPIC USTORTHENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (10%), TOTAL COARSE FRAGMENTS (50%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD012. SURVEY CONDUCTED BY R. L. DEVELICE AND A. McALPINE. CA. 30% OF THE CERCOCARPUS LEDIFOLIUS PLANTS PRESENT ARE DEAD, AND MANY OF THE LIVING C. LEDIFOLIUS HAVE DEAD BRANCHES. JUNIPERUS SCOPULORUM MORTALITY IS ALSO PRESENT. THIS OCCURRENCE RECORD ALSO INCLUDES PLOT #91RD011, LOCATED CA. 0.2 MILE NORTH.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST 6TH AVE., HELENA, MT 59620.

Scientific Name: JUNIPERUS SCOPULORUM/CERCOCARPUS LEDIFOLIUS PA
Common Name: ROCKY MOUNTAIN JUNIPER/CURL-LEAF MOUNTAIN MAHOGANY ASSOCIATION

Global rank: G3 Forest Service status:
State rank: S3 Federal Status:

Element occurrence code: C2A2ABABN0.004

Survey site name: GOAT MOUNTAIN - SOUTH RIDGE
EO rank: BC
EO rank comments: THE PRESENCE OF INCREASER PLANTS SUGGESTS MODERATE DISTURBANCE BY DEER.

County: SILVER BOW

USGS quadrangle: MELROSE

Township: 001S Range: 009W Section: 32 Precision: S
Township-range comments: NE4SE4

Survey date: 1991-06-03 Elevation: 5560
First observation: 1991 Slope/aspect: 25% / SOUTH
Last observation: 1991-06-03 Size (acres): 10

Location:
FROM MOOSE CREEK ROAD EXIT (#99) ON INTERSTATE 15, PROCEED NORTH AND WEST ON FRONTAGE ROAD 0.5 MILE TO JUNCTION WITH GRAVEL ROAD. TAKE THIS GRAVEL ROAD SOUTH 1.2 MILES TO A Y INTERSECTION. GO RIGHT TO RIVER AND PARK (0.4 MILE). PLOT IS 0.3 MILE DUE NORTH TO THE RIGHT OF FIRST LIMESTONE OUTCROP ON LOWER LEFT-HAND RIDGE.

Element occurrence data:
WITHIN PLOT, 24 SPECIES OBSERVED. DOMINANTS INCLUDE: JUNIPERUS SCOPULORUM (3% CANOPY COVER), CERCOCARPUS LEDIFOLIUS (60%), GUTIERREZIA SAROTHRAE (3%), AGROPYRON SPICATUM (10%), AND ORYZOPSIS HYMENOIDES (10%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
STRUCTURALLY CONTROLLED MOUNTAIN SLOPE; PLOT POSITION IS MID-SLOPE. LIMESTONE PARENT MATERIAL AND BOROLLIC CALCIORTHID SOIL SUBGROUP. GROUND COVER: BARE SOIL (20%), TOTAL COARSE FRAGMENTS (43%).

Land owner/manager:
BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
MTNHP PLOT #91RD020. SURVEY CONDUCTED BY R. L. DEVELICE AND J. SANDFORD. THE RELATIVELY HIGH COVER OF GUTIERREZIA SAROTHRAE MAY REFLECT THE NATURALLY UNSTABLE NATURE OF THE SUBSTRATE RATHER THAN HEAVY GRAZING EFFECTS.

Information source:
DEVELICE, ROBERT L. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: JUNIPERUS SCOPULORUM/CERCOCARPUS LEDIFOLIUS PA
Common Name: ROCKY MOUNTAIN JUNIPER/CURL-LEAF MOUNTAIN MAHOGANY ASSOCIATION

Global rank: G3 Forest Service status:
State rank: S3 Federal Status:

Element occurrence code: C2A2ABABN0.005

Survey site name: LIME GULCH SPRING NORTH
EO rank: AB
EO rank comments: BROWSING BY DEER AND ELK APPEARS TO BE EXCESSIVE.

County: SILVER BOW

USGS quadrangle: TUCKER CREEK

Township: 001S Range: 009W Section: 11 Precision: S
Township-range comments: NW4NW4

Survey date: 1991-06-18 Elevation: 6240
First observation: 1991 Slope/aspect: 15% / SOUTHWEST
Last observation: 1991-06-18 Size (acres): 5

Location:
FROM DIVIDE (TOWN), PROCEED NORTH ON FRONTAGE ROAD CA. 1.6 MILES TO ROAD LEADING EAST. TAKE THIS ROAD CA. 1.5 MILES EAST TO A RANCH HOUSE, AND ASK PERMISSION TO CROSS PRIVATE LAND TO SITE. PLOT IS ON WEST SLOPE OF RIDGE, 0.9 MILE SOUTHEAST OF RANCH HOUSE.

Element occurrence data:
WITHIN PLOT, 35 SPECIES OBSERVED. DOMINANTS INCLUDE: JUNIPERUS SCOPULORUM (1% CANOPY COVER), CERCOCARPUS LEDIFOLIUS (40%), ORYZOPSIS HYMENOIDES (3%), CYMOPTERIS BIPINNATUS (3%), AND HAPLOPAPPUS ACAULIS (3%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
RESIDUAL MOUNTAIN SLOPE; PLOT POSITION IS UPPER SLOPE. LIMESTONE PARENT MATERIAL AND LITHIC USTIC TORRIORTHENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (30%), TOTAL COARSE FRAGMENTS (21%).

Land owner/manager:
BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA
HUMBUG SPIRES PRIMITIVE AREA
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
MTNHP PLOT #91RD024. SURVEY CONDUCTED BY R. L. DEVELICE AND D. HEINZE. ARABIS FECUNDA PRESENT ON SITE.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: JUNIPERUS SCOPULORUM/CERCOCARPUS LEDIFOLIUS PA
Common Name: ROCKY MOUNTAIN JUNIPER/CURL-LEAF MOUNTAIN MAHOGANY ASSOCIATION

Global rank: G3 Forest Service status:
State rank: S3 Federal Status:

Element occurrence code: C2A2ABABN0.006

Survey site name: SANDY HOLLOW - QUARTZITE RIDGE NORTH
EO rank: A
EO rank comments: PRISTINE SITE.

County: MADISON

USGS quadrangle: BLOCK MOUNTAIN

Township: 004S Range: 008W Section: 22 Precision: S
Township-range comments: SE4NE4

Survey date: 1991-06-04 Elevation: 5600
First observation: 1991 Slope/aspect: 65% / NORTHWEST
Last observation: 1991-06-04 Size (acres): 5

Location:
FROM GLEN, PROCEED SOUTH ON PAVEMENT CA. 0.75 MILE TO THE BURMA ROAD. TAKE THIS ROAD 7.5 MILES TO SANDY HOLLOW ROAD. TAKE THIS ROAD 3.05 MILES TO CONGLOMERATE DIKE. THE PLOT IS LOCATED ON THE NORTHWEST SLOPES, CA. 0.15 MILE EAST OF THE ROAD.

Element occurrence data:
WITHIN PLOT, 16 SPECIES OBSERVED. DOMINANTS INCLUDE: JUNIPERUS SCOPULORUM (20% CANOPY COVER), ARTEMISIA TRIDENTATA (10%), CERCOCARPUS LEDIFOLIUS (20%), AGROPYRON SPICATUM (10%), AND POA SANDBERGII (1%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
STRUCTURALLY CONTROLLED MOUNTAIN SLOPE; PLOT POSITION IS SHORT SLOPE. CONGLOMERATE PARENT MATERIAL AND LITHIC USTORTHENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (0%), TOTAL COARSE FRAGMENTS (61%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD006. SURVEY CONDUCTED BY R. L. DEVELICE, P. ACHUFF, AND A. McALPINE.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST 6TH AVE., HELENA, MT 59620.

Scientific Name: PHALARIS ARUNDINACEA CT
Common Name: REED CANARY GRASS COMMUNITY

Global rank: G4 Forest Service status:
State rank: S4 Federal Status:

Element occurrence code: C5B1CGABA0.001

Survey site name: HAHNKAMP ISLAND SOUTH #2
EO rank: AB
EO rank comments: BASICALLY A PRISTINE SITE.

County: BEAVERHEAD

USGS quadrangle: EARLS GULCH

Township: 003S Range: 009W Section: 02 Precision: S
Township-range comments: SE4NW4

Survey date: 1991-08-21 Elevation: 5145
First observation: 1991 Slope/aspect: 1% / NORTH
Last observation: 1991-08-21 Size (acres): 1

Location:
FROM MELROSE, PROCEED SOUTH 0.7 MILES ON THE FRONTAGE ROAD AND PARK. FORD THE BIG HOLE RIVER TO THE ISLAND. THE PLOT IS NEAR THE SOUTH END OF THE ISLAND, CA. 0.8 MILE TO THE SOUTH.

Element occurrence data:
WITHIN PLOT, 7 SPECIES OBSERVED. DOMINANTS INCLUDE: PHALARIS ARUNDINACEA (98% CANOPY COVER), POA PALUSTRIS (10%), CARDAMINE OLIGOSPERMA (1%), CIRSIUM ARVENSE (3%), AND MENTHA ARVENSIS (3%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
ALLUVIAL FLOOD PLAIN; PLOT POSITION IS STREAM BAR IN WIDE VALLEY BOTTOM. GRAVELLY ALLUVIUM PARENT MATERIAL AND TYPIC FLUVAQUENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (20%), TOTAL COARSE FRAGMENTS (0%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD051. SURVEY CONDUCTED BY R. L. DEVELICE. SPECIES RICHNESS IS LIKELY LOW DUE TO INTENSE COMPETITION WITH PHALARIS ARUNDINACEA. NOTE: LAND OWNERSHIP IS BLM, BUT MAY APPEAR AS PRIVATELY-OWNED LAND ON MAPS.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST 6TH AVE., HELENA, MT 59620.

Scientific Name: PICEA SP/EQUISETUM ARVENSE PA
Common Name: SPRUCE/FIELD HORSETAIL ASSOCIATION

Global rank: G4 Forest Service status:
State rank: S3 Federal Status:

Element occurrence code: C1A9CDACA0.002

Survey site name: UPPER RED ROCK LAKE
EO rank: A
EO rank comments: VERY HIGH QUALITY OLD-GROWTH PICEA ENGELMANNII WETLAND SITE.

County: BEAVERHEAD

USGS quadrangle: UPPER RED ROCK LAKE

Township: 014S Range: 001W Section: 22 Precision: S
Township-range comments: SE4SE4

Survey date: 1991-07-26 Elevation: 6620
First observation: 1991 Slope/aspect: 3% / NORTH
Last observation: 1991-07-26 Size (acres): 10

Location:
FROM MONIDA, PROCEED EAST ON MAIN GRAVEL ROAD CA. 32 MILES TO UPPER LAKE CAMPGROUND. CONTINUE PAST CAMPGROUND 1.5 MILES AND PARK. THE PLOT IS IN THE PROMINENT SPRUCE STAND 0.2 MILE DUE NORTH.

Element occurrence data:
WITHIN PLOT, 29 SPECIES OBSERVED. DOMINANTS INCLUDE: PICEA ENGELMANNII (80% CANOPY COVER), LINNAEA BOREALIS (20%), CALAMAGROSTIS CANADENSIS (10%), ACTAEA RUBRA (20%), AND EQUISETUM ARVENSE (50%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
LACUSTRINE BASIN; PLOT POSITION IS TERRACE IN WIDE VALLEY BOTTOM. MIXED ALLUVIUM PARENT MATERIAL AND HISTIC CRYAQUALL SOIL SUBGROUP. GROUND COVER: BARE SOIL (TRACE), TOTAL COARSE FRAGMENTS (0%).

Land owner/manager:
RED ROCK LAKES WILDERNESS
RED ROCK LAKES NATIONAL WILDLIFE REFUGE

Comments:
MTNHP PLOT #91RD043. SURVEY CONDUCTED BY R. L. DEVELICE. THE PICEA TREES PRESENT APPEAR TO BE P. ENGELMANNII X P. GLAUCA HYBRIDS.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: PINUS ALBICAULIS-ABIES LASIOCARPA PA
Common Name: WHITE BARK PINE-SUBALPINE FIR ASSOCIATION

Global rank: G5 Forest Service status:
State rank: S5 Federal Status:

Element occurrence code: C1A9BBADA0.009

Survey site name: NEMESIS MOUNTAIN - COLE CREEK RIDGE
EO rank: A
EO rank comments: PRISTINE SITE

County: BEAVERHEAD

USGS quadrangle: MOUNT JEFFERSON

Township: 014S Range: 002W Section: 31 Precision: S
Township-range comments: NE4NW4

Survey date: 1991-07-25 Elevation: 9320
First observation: 1991 Slope/aspect: 15% / SOUTHEAST
Last observation: 1991-07-25 Size (acres): 5

Location:
FROM MONIDA, PROCEED EAST ON MAIN GRAVEL ROAD 44.5 MILES TO RED ROCK PASS. PARK. TAKE THE CONTINENTAL DIVIDE TRAIL CA. 1.5 MILES SOUTHWEST. PLOT IS ON THE CREST OF THE KNOLL, 0.6 MILE SOUTHEAST OF THE SUMMIT OF NEMESIS MOUNTAIN.

Element occurrence data:
WITHIN PLOT, 32 SPECIES OBSERVED. DOMINANTS INCLUDE: PINUS ALBICAULIS (10% CANOPY COVER), ABIES LASIOCARPA (TRACE), HAPLOPAPPUS ACAULIS (1%), IVESIA GORDONII (1%), AND SOLIDAGO MULTIRADIATA (3%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
GLACIATED MOUNTAIN RIDGE; PLOT POSITION IS NARROW RIDGE. QUARTZITE PARENT MATERIAL AND LITHIC CRYOCHREPT SOIL SUBGROUP. GROUND COVER: BARE SOIL (20%), TOTAL COARSE FRAGMENTS (60%).

Land owner/manager:
BEAVERHEAD NATIONAL FOREST, MADISON RANGER DISTRICT

Comments:
MTNHP PLOT #91RD041. SURVEY CONDUCTED BY R. L. DEVELICE. LESQUERELLA (PAYSONII?) PRESENT ON SITE.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: PINUS ALBICAULIS-ABIES LASIOCARPA PA
Common Name: WHITE BARK PINE-SUBALPINE FIR ASSOCIATION

Global rank: G5 Forest Service status:
State rank: S5 Federal Status:

Element occurrence code: C1A9BBADA0.010

Survey site name: NEMESIS MOUNTAIN - SOUTHEAST RIDGE
EO rank: A
EO rank comments: PRISTINE SITE.

County: BEAVERHEAD

USGS quadrangle: MOUNT JEFFERSON

Township: 014S Range: 001E Section: 36 Precision: S
Township-range comments: NE4NE4

Survey date: 1991-07-26 Elevation: 8980
First observation: 1991 Slope/aspect: 60% / SOUTH
Last observation: 1991-07-26 Size (acres): 1

Location:
FROM MONIDA, PROCEED EAST ON MAIN GRAVEL ROAD 44.5 MILES TO RED ROCK PASS. PARK. TAKE THE CONTINENTAL DIVIDE TRAIL CA. 1.5 MILES SOUTHWEST. PLOT IS JUST BELOW SADDLE ON SOUTHEAST RIDGE OF NEMESIS MOUNTAIN, CA. 0.3 MILE SOUTHEAST OF SUMMIT.

Element occurrence data:
WITHIN PLOT, 41 SPECIES OBSERVED. DOMINANTS INCLUDE: PINUS ALBICAULIS (30% CANOPY COVER), ABIES LASIOCARPA (1%), PSEUDOTSUGA MENZIESII (10%), JUNIPERUS COMMUNIS (3%), AND CALAMAGROSTIS PURPURASCENS (20%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
GLACIATED MOUNTAIN RIDGE; PLOT POSITION IS UPPER SLOPE. QUARTZITE PARENT MATERIAL AND ARGIC CRYOBOROLL SOIL SUBGROUP. GROUND COVER: BARE SOIL (10%), TOTAL COARSE FRAGMENTS (50%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD042. SURVEY CONDUCTED BY R. L. DEVELICE. THE HIGH SPECIES RICHNESS PRESENT MAY BE IN RESPONSE TO HIGH MICRO-HABITAT DIVERSITY. THE TREES PRESENT ARE WIND-SHAPED. LESQUERELLA (PAYSONII?) PRESENT ON SITE.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: PINUS FLEXILIS/AGROPYRON SPICATUM PA
Common Name: LIMBER PINE/BLUEBUNCH WHEATGRASS ASSOCIATION

Global rank: G5 Forest Service status:
State rank: S4 Federal Status:

Element occurrence code: C2A2ADABA0.002

Survey site name: BIG SHEEP CREEK SLIDE - SOUTHEAST
EO rank: A
EO rank comments: SOME EVIDENCE OF HEAVY DEER BROWSING BUT SITE IS BASICALLY PRISTINE.

County: BEAVERHEAD

USGS quadrangle: CABOOSE CANYON

Township: 015S Range: 010W Section: 10 Precision: S
Township-range comments: SW4NE4

Survey date: 1991-07-09 Elevation: 7000
First observation: 1991 Slope/aspect: 65% / SOUTH
Last observation: 1991-07-09 Size (acres): 10

Location:
FROM DELL, PROCEED SOUTH ALONG INTERSTATE 15 FRONTAGE ROAD FOLLOWING THE BIG SHEEP CREEK SIGNS. CONTINUE 1.7 MILES TO A T INTERSECTION AND TAKE THE FORK LEADING SOUTHWEST. PROCEED 8 MILES TO A Y INTERSECTION AND TAKE THE ROAD LEADING SOUTH. PROCEED 7.5 MILES AND PARK. PLOT IS CA. 0.15 MILE NORTHWEST.

Element occurrence data:
WITHIN PLOT, 19 SPECIES OBSERVED. DOMINANTS INCLUDE: PINUS FLEXILIS (3% CANOPY COVER), ARTEMISIA ARBUSCULA (10%), ARTEMISIA FRIGIDA (10%), AGROPYRON SPICATUM (20%), AND HESPEROCHLOA KINGII (3%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
MASS WASTED SLOPE; PLOT POSITION IS MID-SLOPE. LIMESTONE PARENT MATERIAL AND TYPIC USTORTHENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (10%), TOTAL COARSE FRAGMENTS (60%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD027. SURVEY CONDUCTED BY R. L. DEVELICE.

Information source:
DEVELICE, ROBERT L. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: PINUS FLEXILIS/CERCOCARPUS LEDIFOLIUS PA
Common Name: LIMBER PINE/CURL-LEAF MOUNTAIN MAHOGANY ASSOCIATION

Global rank: G3? Forest Service status:
State rank: S3? Federal Status:

Element occurrence code: C2A2ADABM0.001

Survey site name: LIME GULCH SPRING SOUTH
EO rank: AB
EO rank comments: RECOVERING FROM FIRE CA. 50 YEARS AGO. SOME TREES SALVAGE-LOGGED. HEAVY USE BY DEER AND ELK IS APPARENT.

County: SILVER BOW

USGS quadrangle: TUCKER CREEK

Township: 001S Range: 009W Section: 11 Precision: S
Township-range comments: NW4NW4

Survey date: 1991-06-11 Elevation: 6220
First observation: 1991 Slope/aspect: 40% / SOUTHWEST
Last observation: 1991-06-11 Size (acres): 10

Location:
FROM DIVIDE (TOWN), PROCEED NORTH ON FRONTAGE ROAD CA. 1.6 MILES TO ROAD LEADING EAST. TAKE THIS ROAD CA. 1.5 MILES EAST TO A RANCH HOUSE, AND ASK PERMISSION TO CROSS PRIVATE LAND TO SITE. PLOT IS ON WEST SLOPE OF RIDGE, 0.9 MILE SOUTHEAST OF RANCH HOUSE.

Element occurrence data:
WITHIN PLOT, 21 SPECIES OBSERVED. DOMINANTS INCLUDE: PINUS FLEXILIS (3% CANOPY COVER), JUNIPERUS SCOPULORUM (1%), CERCOCARPUS LEDIFOLIUS (30%), AGROPYRON SPICATUM (TRACE), AND ORYZOPSIS HYMENOIDES (TRACE). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
RESIDUAL MOUNTAIN SLOPE; PLOT POSITION IS MID-SLOPE. LIMESTONE PARENT MATERIAL AND LITHIC USTORTHENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (20%), TOTAL COARSE FRAGMENTS (70%).

Land owner/manager:
BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA
HUMBUG SPIRES PRIMITIVE AREA

Comments:
MTNHP PLOT #91RD016. SURVEY CONDUCTED BY R. L. DEVELICE. ARABIS FECUNDA PRESENT ON SITE.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: PINUS FLEXILIS/CERCOCARPUS LEDIFOLIUS PA
Common Name: LIMBER PINE/CURL-LEAF MOUNTAIN MAHOGANY ASSOCIATION

Global rank: G3? Forest Service status:
State rank: S3? Federal Status:

Element occurrence code: C2A2ADABM0.002

Survey site name: QUARTZ HILL GULCH
EO rank: BC
EO rank comments: ENHANCED EROSION AND HEAVY BROWSING SUGGEST HEAVY USE BY DEER.

County: BEAVERHEAD

USGS quadrangle: DEWEY

Township: 001S Range: 010W Section: 08 Precision: S
Township-range comments: SE4NE4

Survey date: 1991-06-11 Elevation: 6040
First observation: 1991 Slope/aspect: 65% / SOUTHEAST
Last observation: 1991-06-11 Size (acres): 20

Location:
FROM DEWEY, PROCEED WEST ON STATE HIGHWAY 43 0.3 MILE TO QUARTZ HILL ROAD. TAKE THIS ROAD SOUTH 1 MILE AND PARK. PLOT IS BETWEEN TWO CLIFF BANDS ON EAST-FACING SLOPE ABOVE.

Element occurrence data:
WITHIN PLOT, 17 SPECIES OBSERVED. DOMINANTS INCLUDE: PINUS FLEXILIS (1% CANOPY COVER), JUNIPERUS SCOPULORUM (3%), CERCOCARPUS LEDIFOLIUS (10%), AGROPYRON SPICATUM (1%), AND ORYZOPSIS HYMENOIDES (3%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
RESIDUAL MOUNTAIN SLOPE; PLOT POSITION IS MID-SLOPE. LIMESTONE PARENT MATERIAL AND LITHIC USTORTHENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (40%), TOTAL COARSE FRAGMENTS (60%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD017. SURVEY CONDUCTED BY R. L. DEVELICE. THE DEGREE OF EROSION APPEARS TO BE INCREASING ON THIS SITE AND GULLIES ARE BEGINNING TO FORM. ARABIS FECUNDA PRESENT ON SITE.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: PINUS FLEXILIS/CERCOCARPUS LEDIFOLIUS PA
Common Name: LIMBER PINE/CURL-LEAF MOUNTAIN MAHOGANY ASSOCIATION

Global rank: G3? Forest Service status:
State rank: S3? Federal Status:

Element occurrence code: C2A2ADABM0.003

Survey site name: SCUDDER CREEK EXCLOSURE
EO rank: B
EO rank comments: THE SITE HAS NOT BEEN GRAZED SINCE 1963 BUT IS SURROUNDED BY HEAVILY BROWSED LANDS.

County: BEAVERHEAD

USGS quadrangle: POLARIS

Township: 006S Range: 012W Section: 20 Precision: S
Township-range comments: NE4NE4

Survey date: 1991-07-08 Elevation: 6680
First observation: 1991 Slope/aspect: 18% / EAST
Last observation: 1991-07-08 Size (acres): 5

Location:
FROM EXIT #59 ON INTERSTATE 15, PROCEED WEST ON HIGHWAY 278 FOR 25 MILES TO THE POLARIS TURNOFF. TAKE THE GRAVEL POLARIS ROAD 2 MILES NORTH TO A JEEP TRAIL LEADING EAST (THROUGH A GATE). TAKE THIS JEEP TRAIL 1.3 MILES TO A FAINT JEEP TRAIL LEADING SOUTH. PARK AND WALK 0.25 MILE SOUTH ON THE TRAIL. THE EXCLOSURE IS ON THE RIDGE TO THE EAST.

Element occurrence data:
WITHIN PLOT, 30 SPECIES OBSERVED. DOMINANTS INCLUDE: PINUS FLEXILIS (TRACE CANOPY COVER), JUNIPERUS SCOPULORUM (1%), CERCOCARPUS LEDIFOLIUS (40%), CHRYSOTHAMNUS NAUSEOSUS (3%), AND CAREX ROSSII (20%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
STRUCTURALLY CONTROLLED MOUNTAIN SLOPE; PLOT POSITION IS NARROW RIDGE. LIMESTONE PARENT MATERIAL AND LITHIC USTORTHENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (20%), TOTAL COARSE FRAGMENTS (13%).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD026. SURVEY CONDUCTED BY R. L. DEVELICE. EXCLOSURE ESTABLISHED IN 1963 (PERS. COMM., JACK JONES, BLM, BUTTE). CA. 20% OF THE CERCOCARPUS LEDIFOLIUS PLANTS PRESENT ARE DEAD. LESQUERELLA (PAYSONII?) PRESENT ON SITE. AN ADDITIONAL PLOT OF THIS TYPE WAS ESTABLISHED CA. 0.25 MILE NORTH OF SITE (#91RD034).

Information source:
DEVELICE, ROBERT L. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

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Scientific Name: POPULUS TRICHOCARPA/CORNUS STOLONIFERA CT
Common Name: BLACK COTTONWOOD/RED-OSIER DOGWOOD COMMUNITY

Global rank: G4 Forest Service status:
State rank: S4 Federal Status:

Element occurrence code: C1B3DFACA0.003

Survey site name: HAHNKAMP ISLAND SOUTH #1
EO rank: BC
EO rank comments: CATTLE APPEAR TO HAVE SIGNIFICANTLY DISTURBED SITE IN THE PAST.

County: BEAVERHEAD

USGS quadrangle: EARLS GULCH

Township: 003S Range: 009W Section: 02 Precision: S
Township-range comments: SE4NW4

Survey date: 1991-08-19 Elevation: 5150
First observation: 1991 Slope/aspect: 0% / NORTH
Last observation: 1991-08-19 Size (acres): 2

Location:
FROM MELROSE, PROCEED SOUTH 0.7 MILES ON THE FRONTAGE ROAD AND PARK. FORD THE BIG HOLE RIVER TO THE ISLAND. THE PLOT IS NEAR THE SOUTH END OF THE ISLAND, CA. 0.8 MILE TO THE SOUTH.

Element occurrence data:
WITHIN PLOT, 21 SPECIES OBSERVED. DOMINANTS INCLUDE: POPULUS TRICHOCARPA (70% CANOPY COVER), JUNIPERUS SCOPULORUM (3%), ROSA ACICULARIS (80%), POA PALUSTRIS (20%), AND POA PRATENSIS (30%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
ALLUVIAL FLOOD PLAIN; PLOT POSITION IS FLOOD PLAIN IN WIDE VALLEY BOTTOM. GRAVELLY ALLUVIUM PARENT MATERIAL AND TYPIC UDIFLUVENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (10%), TOTAL COARSE FRAGMENTS (TRACE).

Land owner/manager:
BLM: BUTTE DISTRICT, DILLON RESOURCE AREA

Comments:
MTNHP PLOT #91RD047. SURVEY CONDUCTED BY R. L. DEVELICE. VEGETATION COMPOSITION WITHIN THIS SITE IS VERY HETEROGENEOUS SPATIALLY. THIS LIKELY REFLECTS THE PATTERN OF ALLUVIAL DISTURBANCES ACTIVE AT THE SITE. NOTE: LAND OWNERSHIP IS BLM, EVEN THOUGH MAPS MAY SHOW AREA AS PRIVATELY-OWNED.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST 6TH AVE., HELENA, MT 59620.

Scientific Name: POPULUS TRICHOCARPA/CORNUS STOLONIFERA CT
Common Name: BLACK COTTONWOOD/RED-OSIER DOGWOOD COMMUNITY

Global rank: G4 Forest Service status:
State rank: S4 Federal Status:

Element occurrence code: C1B3DFACA0.004

Survey site name: MAIDEN EXCLOSURE - SOUTHEAST
EO rank: BC
EO rank comments: THE SITE APPEARS TO HAVE BEEN HEAVILY GRAZED PRIOR TO EXCLOSURE ESTABLISHMENT IN 1984.

County: BEAVERHEAD

USGS quadrangle: MELROSE

Township: 001S Range: 009W Section: 32 Precision: S
Township-range comments: SE4SE4

Survey date: 1991-08-20 Elevation: 5325
First observation: 1991 Slope/aspect: 2% / NORTHWEST
Last observation: 1991-08-20 Size (acres): 1

Location:
FROM THE MOOSE CREEK ROAD EXIT (#99) ON INTERSTATE 15, PROCEED NORTH AND WEST ON FRONTAGE ROAD 0.5 MILE TO JUNCTION WITH A GRAVEL ROAD. TAKE THIS GRAVEL ROAD SOUTH 1.2 MILES TO A Y INTERSECTION. GO LEFT AND RIGHT CA. 1 MILE TO A BRIDGE CROSSING THE RIVER. CROSS THE BRIDGE. EXCLOSURE IS TO THE RIGHT.

Element occurrence data:
WITHIN PLOT, 23 SPECIES OBSERVED. DOMINANTS INCLUDE: POPULUS TRICHOCARPA (90% CANOPY COVER), SALIX EXIGUA (10%), CORNUS STOLONIFERA (1%), ROSA ACICULARIS (10%), AND POA PALUSTRIS (40%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
ALLUVIAL FLOOD PLAIN; PLOT POSITION IS FLOOD PLAIN IN WIDE VALLEY BOTTOM. GRAVELLY ALLUVIUM PARENT MATERIAL AND TYPIC UDIFLUVENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (1%), TOTAL COARSE FRAGMENTS (0%).

Land owner/manager:
BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
MTNHP PLOT #91RD048. SURVEY CONDUCTED BY R. L. DEVELICE. EXCLOSURE ESTABLISHED IN 1984 (PERS. COMM., JACK JONES, BLM, BUTTE). AN OLD-GROWTH POPULUS TRICHOCARPA STAND WITH P. TRICHOCARPA SAPLING AND SMALL TREE MORTALITY IN THE UNDERSTORY, AND MANY DEAD BRANCHES IN THE MATURE P. TRICHOCARPA.

Information source:
DEVELICE, ROBERT L. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

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Scientific Name: PSEUDOTSUGA MENZIESII/CERCOCARPUS LEDIFOLIUS PA
Common Name: DOUGLAS FIR/CURL-LEAF MOUNTAIN MAHOGANY ASSOCIATION

Global rank: G3? Forest Service status:
State rank: S3? Federal Status:

Element occurrence code: C2A2BBABH0.001

Survey site name: LIME GULCH SOUTH
EO rank: B
EO rank comments: THE PRESENCE OF INCREASER SPECIES IS LIKELY THE RESULT OF HEAVY GRAZING DISTURBANCE ON ADJACENT SITES, AND THE NATURALLY UNSTABLE SUBSTRATE PRESENT.

County: SILVER BOW

USGS quadrangle: TUCKER CREEK

Township: 001S Range: 009W Section: 15 Precision: S
Township-range comments: NE4NW4

Survey date: 1991-06-10 Elevation: 5920
First observation: 1991 Slope/aspect: 65% / WEST
Last observation: 1991-06-10 Size (acres): 1

Location:
FROM DIVIDE (TOWN), PROCEED EAST 1 MILE ON STATE HIGHWAY 43 TO INTERSTATE 15. DRIVE UNDER OVERPASS AND PARK BY FENCE ON EAST SIDE OF INTERSTATE. PLOT IS DUE EAST 1.25 MILES, IN FOREST JUST ABOVE THE FOREST-GRASSLAND ECOTONE.

Element occurrence data:
WITHIN PLOT, 17 SPECIES OBSERVED. DOMINANTS INCLUDE: PSEUDOTSUGA MENZIESII (10% CANOPY COVER), CERCOCARPUS LEDIFOLIUS (50%), ARTEMISIA TRIDENTATA (TRACE), AGROPYRON SPICATUM (TRACE), AND POA SANDBERGII (TRACE). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
RESIDUAL MOUNTAIN SLOPE; PLOT POSITION IS MID-SLOPE. GRANITE PARENT MATERIAL AND TYPIC USTORTHENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (10%), TOTAL COARSE FRAGMENTS (80%).

Land owner/manager:
BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA
HUMBUG SPIRES PRIMITIVE AREA

Comments:
MTNHP PLOT #91RD014. SURVEY CONDUCTED BY R. L. DEVELICE. CA. 20% OF THE CERCOCARPUS LEDIFOLIUS PLANTS PRESENT ARE DEAD. DRABA DENSIFOLIA PRESENT ON SITE.

Information source:
DEVELICE, ROBERT. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: PSEUDOTSUGA MENZIESII/CERCOCARPUS LEDIFOLIUS PA
Common Name: DOUGLAS FIR/CURL-LEAF MOUNTAIN MAHOGANY ASSOCIATION

Global rank: G3? Forest Service status:
State rank: S3? Federal Status:

Element occurrence code: C2A2BBABH0.002

Survey site name: SELWAY SPRING
EO rank: BC
EO rank comments: MODERATE TO HEAVY BROWSING BY DEER ON THIS STEEP, UNSTABLE SLOPE HAS RESULTED IN SOME SITE DEGRADATION.

County: SILVER BOW

USGS quadrangle: MELROSE

Township: 001S Range: 009W Section: 15 Precision: S
Township-range comments: SE4SW4

Survey date: 1001-06-10 Elevation: 5920
First observation: 1991 Slope/aspect: 35% / WEST
Last observation: 1991-06-10 Size (acres): 5

Location:
FROM DIVIDE (TOWN), PROCEED EAST 1 MILE ON STATE HIGHWAY 43 TO INTERSTATE 15. DRIVE UNDER OVERPASS AND PARK BY FENCE ON EAST SIDE OF INTERSTATE. PLOT IS CA. 1.5 MILES SOUTHEAST IN FOREST JUST ABOVE THE FOREST-GRASSLAND ECOTONE, AND UPSLOPE FROM SELWAY SPRING.

Element occurrence data:
WITHIN PLOT, 18 SPECIES OBSERVED. DOMINANTS INCLUDE: PSEUDOTSUGA MENZIESII (20% CANOPY COVER), CERCOCARPUS LEDIFOLIUS (70%), ARTEMISIA FRIGIDA (TRACE), AGROPYRON SPICATUM (TRACE), AND POA SANDBERGII (TRACE). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
RESIDUAL MOUNTAIN SLOPE; PLOT POSITION IS MID-SLOPE. GRANITE PARENT MATERIAL AND TYPIC USTORTHENT SOIL SUBGROUP. GROUND COVER: BARE SOIL (10%), TOTAL COARSE FRAGMENTS (70%).

Land owner/manager:
BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA
HUMBUG SPIRES PRIMITIVE AREA

Comments:
MTNHP PLOT #91RD015. SURVEY CONDUCTED BY R. L. DEVELICE.

Information source:
DEVELICE, ROBERT L. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: PSEUDOTSUGA MENZIESII/CERCOCARPUS LEDIFOLIUS PA
Common Name: DOUGLAS FIR/CURL-LEAF MOUNTAIN MAHOGANY ASSOCIATION

Global rank: G3? Forest Service status:
State rank: S3? Federal Status:

Element occurrence code: C2A2BBABH0.003

Survey site name: MOOSE CREEK/MUD SPRING RIDGE
EO rank: AB
EO rank comments: ENHANCED EROSION AND PRESENCE OF INCREASER PLANTS SUGGESTS MODERATE DISTURBANCE BY DEER.

County: SILVER BOW

USGS quadrangle: MELROSE

Township: 001S Range: 009W Section: 23 Precision: S
Township-range comments: NE4SW4

Survey date: 1991-06-12 Elevation: 6600
First observation: 1991 Slope/aspect: 50% / SOUTHWEST
Last observation: 1991-06-12 Size (acres): 1

Location:
TAKE MOOSE CREEK EXIT (#99) OFF INTERSTATE 15. PROCEED EAST ON MOOSE CREEK ROAD 2.5 MILES AND PARK. PLOT IS JUST BELOW RIDGECREST, CA. 0.4 MILE WNW.

Element occurrence data:
WITHIN PLOT, 17 SPECIES OBSERVED. DOMINANTS INCLUDE: PSEUDOTSUGA MENZIESII (10% CANOPY COVER), JUNIPERUS SCOPULORUM (10%), ARTEMISIA TRIDENTATA (20%), CERCOCARPUS LEDIFOLIUS (10%), AND AGROPYRON SPICATUM (20%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
RESIDUAL MOUNTAIN SLOPE; PLOT POSITION IS UPPER SLOPE. SCHIST PARENT MATERIAL AND TYPIC ARGIBOROLL SOIL SUBGROUP. GROUND COVER: BARE SOIL (20%), TOTAL COARSE FRAGMENTS (40%).

Land owner/manager:
BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA
HUMBUG SPIRES PRIMITIVE AREA

Comments:
MTNHP PLOT #91RD019. SURVEY CONDUCTED BY R. L. DEVELICE.

Information source:
DEVELICE, ROBERT L. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: PSEUDOTSUGA MENZIESII/CERCOCARPUS LEDIFOLIUS PA
Common Name: DOUGLAS FIR/CURL-LEAF MOUNTAIN MAHOGANY ASSOCIATION

Global rank: G3? Forest Service status:
State rank: S3? Federal Status:

Element occurrence code: C2A2BBABH0.004

Survey site name: GOAT MOUNTAIN - SUMMIT
EO rank: A
EO rank comments: PRISTINE SITE, EXCEPT FOR HIGHER THAN NORMAL DEER USE.

County: SILVER BOW

USGS quadrangle: MELROSE

Township: 001S Range: 009W Section: 32 Precision: S
Township-range comments: NE4NE4

Survey date: 1991-06-13 Elevation: 6460
First observation: 1991 Slope/aspect: 5% / SOUTH
Last observation: 1991-06-13 Size (acres): 5

Location:
FROM MOOSE CREEK ROAD EXIT ON INTERSTATE 15 (#99), PROCEED NORTH AND WEST ON FRONTAGE ROAD 0.5 MILE TO JUNCTION WITH A GRAVEL ROAD. TAKE THIS ROAD SOUTH 1.2 MILES TO A Y INTERSECTION, GO RIGHT, AND CONTINUE TO THE RIVER (0.4 MILE) AND PARK. PLOT IS CA. 0.75 MILE NORTHWEST, ON SUMMIT OF GOAT MOUNTAIN.

Element occurrence data:
WITHIN PLOT, 12 SPECIES OBSERVED. DOMINANTS INCLUDE: PSEUDOTSUGA MENZIESII (3% CANOPY COVER), ARTEMISIA TRIDENTATA (TRACE), CERCOCARPUS LEDIFOLIUS (70%), AGROPYRON SPICATUM (TRACE), AND POA SANDBERGII (TRACE). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
RESIDUAL MOUNTAIN RIDGE; PLOT POSITION IS NARROW RIDGE. QUARTZITE PARENT MATERIAL AND LITHIC ARGIBOROLL SOIL SUBGROUP. GROUND COVER: BARE SOIL (3%), TOTAL COARSE FRAGMENTS (40%).

Land owner/manager:
BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
MTNHP PLOT #91RD021. SURVEY CONDUCTED BY R. L. DEVELICE. THE COVER OF PSEUDOTSUGA MENZIESII APPEARS TO BE INCREASING, PERHAPS AS A RESULT OF FIRE SUPPRESSION.

Information source:
DEVELICE, ROBERT L. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

Scientific Name: SALIX EXIGUA CT
Common Name: RIVERBANK WILLOW COMMUNITY

Global rank: G5 Forest Service status:
State rank: S4 Federal Status:

Element occurrence code: C3B4CDABA0.001

Survey site name: MAIDEN EXCLOSURE - NORTHEAST
EO rank: B
EO rank comments: ALTHOUGH THE SURROUNDING LANDS WERE LIKELY HEAVILY GRAZED PRIOR TO EXCLOSURE ESTABLISHMENT IN 1984, IS IS DOUBTFUL CATTLE FREQUENTED SUCH DENSE SALIX STANDS.

County: BEAVERHEAD

USGS quadrangle: MELROSE

Township: 001S Range: 009W Section: 32 Precision: S
Township-range comments: NE4SE4

Survey date: 1991-08-20 Elevation: 5320
First observation: 1991 Slope/aspect: 2% / NORTHEAST
Last observation: 1991-08-20 Size (acres): 1

Location:
FROM THE MOOSE CREEK ROAD EXIT (#99) ON INTERSTATE 15, PROCEED NORTH AND WEST ON FRONTAGE ROAD 0.5 MILE TO JUNCTION WITH A GRAVEL ROAD. TAKE THIS GRAVEL ROAD SOUTH 1.2 MILES TO A Y INTERSECTION. GO LEFT AND RIGHT CA. 1 MILE TO A BRIDGE CROSSING THE RIVER. CROSS THE BRIDGE. EXCLOSURE IS TO THE RIGHT.

Element occurrence data:
WITHIN PLOT, 11 SPECIES OBSERVED. DOMINANTS INCLUDE: SALIX EXIGUA (98% CANOPY COVER), CORNUS STOLONIFERA (TRACE), ELEOCHARIS PALUSTRIS (TRACE), PHALARIS ARUNDINACEA (1%), AND MENTHA ARVENSIS (1%). COMPLETE LIST ON FILE AT MONTANA NATURAL HERITAGE PROGRAM.

General site description:
ALLUVIAL FLOOD PLAIN; PLOT POSITION IS STREAM CHANNEL IN WIDE VALLEY BOTTOM. GRAVELLY ALLUVIUM PARENT MATERIAL AND AQUIC UDIFLUVENT FOIL SUBGROUP. GROUND COVER: BARE SOIL (20%), TOTAL COARSE FRAGMENTS (13%).

Land owner/manager:
BLM: BUTTE DISTRICT, HEADWATERS RESOURCE AREA
PRIVATELY OWNED LAND (INDIVIDUAL OR CORPORATE)

Comments:
MTNHP PLOT #91RD049. SURVEY CONDUCTED BY R. L. DEVELICE. EXCLOSURE ESTABLISHED 1984 (PERS. COMM., JACK JONES, BLM, BUTTE). SPECIES RICHNESS IS LIKELY LOW DUE TO INTENSE COMPETITION WITH SALIX EXIGUA.

Information source:
DEVELICE, ROBERT L. [COMMUNITY ECOLOGIST]. MONTANA NATURAL HERITAGE PROGRAM, 1515 EAST SIXTH AVE., HELENA, MT 59620.

APPENDIX H

LISTING OF ELEMENT OCCURRENCE RECORDS FOR BLM LANDS

The following provides a comprehensive listing of plant and community element occurrence records (EOR's) for BLM lands in Beaverhead, Silver Bow, and Madison counties in the MTNHP database as of March 25, 1992. The records presented in Appendix G are excluded from this list. Only a greatly condensed version of full EOR's is provided. Please contact the MTNHP if complete EOR's are needed (such as those provided in Appendix G).

OCC = MTNHP occurrence number
G = global rarity rank
S = state rarity rank
FWS = U.S. Fish and Wildlife Service status
LEGAL = legal location description
T = Township
R = Range
S = Section

OCC	COMMUNITY TYPE OR SPECIES	RANK G	RANK S	RANK FWS	LEGAL T	LEGAL R	LEGAL S
	Beaverhead County						
4	ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS	G5	S4		14S	8W	24
6	ARTEMISIA TRIDENTATA/FESTUCA IDAHOENSIS	G5	S4		8S	11W	8
1	ARTEMISIA TRIPARTITA/FESTUCA IDAHOENSIS	G5	S3		13S	1W	27
1	AGASTACHE CUSICKII	G2G3	S1	3C	15S	10W	10
3	AQUILEGIA FORMOSA	G5	S1		14S	5W	36
6	ARABIS FECUNDA	G2	S2	C2	1S	10W	8
9	ARABIS FECUNDA	G2	S2	C2	1S	11W	1
3	ARENARIA KINGII	G4	S1		8S	11W	8
1	ASTRAGALUS CERAMICUS VAR APUS	G4T3	S1	3C	13S	2W	22
1	ASTRAGALUS LENTIGINOSUS VAR SALINUS	G5T5	S2		13S	9W	30
2	ASTRAGALUS LENTIGINOSUS VAR SALINUS	G5T5	S2		14S	7W	27
3	ASTRAGALUS LENTIGINOSUS VAR SALINUS	G5T5	S2		11S	11W	17
4	ASTRAGALUS LENTIGINOSUS VAR SALINUS	G5T5	S2		9S	10W	32
5	ASTRAGALUS LEPTALEUS	G4	S1		13S	10W	25
5	ASTRAGALUS PLATYTROPIS	G5	S1		2S	9W	15
1	ASTRAGALUS SCAPHOIDES	G3	S1	C2	8S	11W	8
2	ASTRAGALUS SCAPHOIDES	G3	S1	C2	8S	11W	15
4	ASTRAGALUS SCAPHOIDES	G3	S1	C2	8S	12W	26
5	ASTRAGALUS SCAPHOIDES	G3	S1	C2	9S	13W	14
6	ASTRAGALUS SCAPHOIDES	G3	S1	C2	8S	12W	28
8	ASTRAGALUS SCAPHOIDES	G3	S1	C2	9S	11W	25
9	ASTRAGALUS SCAPHOIDES	G3	S1	C2	8S	11W	8
1	ASTRAGALUS TERMINALIS	G3G4	S2		14S	1W	33
2	ASTRAGALUS TERMINALIS	G3G4	S2		9S	10W	3
3	ASTRAGALUS TERMINALIS	G3G4	S2		12S	8W	34
4	ASTRAGALUS TERMINALIS	G3G4	S2		8S	10W	30
1	CASTILLEJA ANGUSTIFOLIA	G4G5	S2		13S	9W	19
3	CASTILLEJA ANGUSTIFOLIA	G4G5	S2		7S	11W	7
7	CASTILLEJA ANGUSTIFOLIA	G4G5	S2		11S	13W	19
11	CASTILLEJA ANGUSTIFOLIA	G4G5	S2		8S	11W	8

OCC	COMMUNITY TYPE OR SPECIES	RANK G	RANK S	RANK FWS	LEGAL T	LEGAL R	LEGAL S
1	CASTILLEJA RUSTICA	G3G4	S1		14S	3W	31
5	CIRSIUM SUBNIVEUM	G3G4	S1		14S	10W	27
1	CRYPTANTHA FENDLERI	G4	S1		13S	2W	23
2	DELPHINIUM GEYERI	G5	SU		7S	11W	11
2	ERIOGONUM OVALIFOLIUM VAR NEVADENSE	G5T4	S2		11S	12W	25
3	ERIOGONUM OVALIFOLIUM VAR NEVADENSE	G5T4	S2		13S	2W	22
5	GENTIANA AQUATICA	G4	S2		14S	6W	31
8	GENTIANA AQUATICA	G4	S2		13S	6W	35
2	GILIA TWEEDYI	G4G5Q	S1		8S	11W	15
1	HUTCHINSIA PROCUMBENS	G5	S1		15S	10W	10
2	IPOMOPSIS CONGESTA SSP CREBRIFOLIA	G4T4	S1		14S	4W	30
1	LEPIDIUM MONTANUM	G4	S1		14S	4W	6
5	MIMULUS SUKSDORFII	G4?	S1		11S	11W	17
6	MIMULUS SUKSDORFII	G4?	S1		15S	10W	10
1	MUHLENBERGIA MINUTISSIMA	G5	SU		2S	9W	34
1	OENOTHERA PALLIDA VAR IDAHOENSIS	G5T4Q	S1		13S	2W	22
5	PENSTEMON LEMHIENSIS	G3	S2	C2	7S	11W	22
8	PENSTEMON LEMHIENSIS	G3	S2	C2	11S	11W	18
14	PENSTEMON LEMHIENSIS	G3	S2	C2	6S	11W	33
15	PENSTEMON LEMHIENSIS	G3	S2	C2	9S	14W	33
24	PENSTEMON LEMHIENSIS	G3	S2	C2	9S	14W	21
27	PENSTEMON LEMHIENSIS	G3	S2	C2	9S	14W	27
28	PENSTEMON LEMHIENSIS	G3	S2	C2	9S	14W	31
29	PENSTEMON LEMHIENSIS	G3	S2	C2	10S	14W	5
35	PENSTEMON LEMHIENSIS	G3	S2	C2	9S	15W	14
39	PENSTEMON LEMHIENSIS	G3	S2	C2	9S	14W	21
40	PENSTEMON LEMHIENSIS	G3	S2	C2	6S	11W	27
41	PENSTEMON LEMHIENSIS	G3	S2	C2	9S	15W	23
1	PHACELIA INCANA	G3G4	S1		11S	11W	17
2	PHACELIA INCANA	G3G4	S1		15S	10W	10
4	SENECIO DEBILIS	G3G4	S1		2S	9W	34
7	SENECIO DEBILIS	G3G4	S1		14S	11W	27
1	SPHAERALCEA MUNROANA	G4	S1		13S	6W	32
5	SPHENOPHOLIS OBTUSATA VAR MAJOR	G5T5	S2		2S	9W	34
3	STANLEYA VIRIDIFLORA	G4	S1		13S	9W	19
5	STANLEYA VIRIDIFLORA	G4	S1		11S	8W	25
6	STANLEYA VIRIDIFLORA	G4	S1		11S	10W	17
2	TARAXACUM ERIOPHORUM	G4	S1		15S	10W	9
1	THELYPODIUM PANICULATUM	G3G4	S1		14S	1E	14
4	THELYPODIUM SAGITTATUM	G3G4	S1		13S	10W	32
1	TOWNSENDIA FLORIFER	G5	S1		12S	8W	2
2	TOWNSENDIA FLORIFER	G5	S1		11S	8W	25
5	TOWNSENDIA SPATHULATA	G3	S2	3C	8S	12W	35

OCC	COMMUNITY TYPE OR SPECIES	RANK			LEGAL		
		G	S	FWS	T	R	S
	Silver Bow County						
10	AGROPYRON SPICATUM/BOUTELOUA GRACILIS	G5	S4		2S	9W	3
7	ARABIS FECUNDA	G2	S2	C2	1N	10W	31
10	ARABIS FECUNDA	G2	S2	C2	1S	10W	5
	Madison County						
2	AGROPYRON SPICATUM/BOUTELOUA GRACILIS	G5	S4		3S	7W	6
3	ARTEMISIA NOVA/AGROPYRON SPICATUM	G5	S4		4S	5W	3
3	STIPA COMATA/BOUTELOUA GRACILIS	G5	S5		3S	7W	27
5	STIPA COMATA/BOUTELOUA GRACILIS	G5	S5		2S	8W	36
24	STIPA COMATA/BOUTELOUA GRACILIS	G5	S5		3S	7W	6
2	ASTRAGALUS PLATYTROPIS	G5	S1		1S	4W	8
1	CIRSIUM SUBNIVEUM	G3G4	S1		6S	5W	10
4	ERIGERON FORMOSISSIMUS	G5	S1		4S	1E	8
1	MACHAERANTHERA COMMIXTA	G3G4	S1		6S	5W	17
1	STANLEYA VIRIDIFLORA	G4	S1		7S	4W	4

Total number of records = 86